Ecoglo International Limited

Technical Manual

for

Anti-slip Products

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Contents:

Section 09 65 13.26

Ecoglo Anti-Slip Products

This specification has been numbered, organized and formatted in accordance with the MasterFormat, Section Format and Page Format documents published jointly by Construction Specifications Institute (CSI).

It is offered as a guide to experienced and knowledgeable construction professionals who assume full responsibility for its interpretation and use.

Square brackets [ ] containing text indicate an option to be considered/inserted by the specifier. Remove brackets and unused options before printing.

Section 09 65 13.26

Anti-Slip Products

Part 1 General

1.1 Summary

A Work Included: Supply and installation of anti-slip products.

1.2 Quality Assurance

A Manufacturer Qualifications: to have minimum of 25 years' experience with similar work.

1.3 Submittals

A Submit the following [in accordance with Section 01 33 00 – Submittal Procedures]:

1 Product Data: Manufacturer's product data sheets for anti-slip products used in project.

2 Manufacturer's Instructions: Pre-printed material describing installation of product, system or material, including special notices, safety data sheets outlining hazards and safety precautions and maintenance and cleaning instructions.

3 Test Reports: Showing compliance with required standards, ordinances and codes.

4 Substitutions: Substitutions must be submitted and approved prior to bid date. All requests shall include test results, product descriptions, confirmation of piece design and engineering calculations meeting design criteria.

1.4 Delivery, Storage and Handling

A Handle and store products in a manner to prevent damage, deterioration and soiling to products, other building components, assemblies, other products, the structure, the Site and surrounding property and in accordance with manufacturer's instructions.

B Store packaged or bundled products in original and undamaged containers and packaging with manufacturer's seals and labels intact. Do not remove from packaging or containers until ready to be installed.

C Store products subject to damage from weather in weatherproof enclosures.

1.5 Warranty

A Provide manufacturer's limited warranty. Warranty to cover defects in materials and workmanship.

Part 2 Products

2.1 Manufacturers

A Contract Documents are based on products by Ecoglo International Ltd. (www.ecoglo.com)

B Substitutions: [Under provisions of Division 01.] [Not permitted.]

2.2 Materials

A Anti-slip materials are embedded in thermoset polyester manufactured using a High Temperature Manufacturing (HTC) process at a temperature exceeding 160°C to integrally bond the active ingredients to 5005 0.9mm aluminium (aluminum) sheet.

B All anti-slip products to meet or exceed the performance criteria specified in the following tests or standards. PC = Performance Criteria

a. Slip Resistance

UL 410 Standard for Slip Resistance for Floor Surface Materials, PC – Pass, or alternatively,

AS 4586-2013 Slip Resistance Classification of New Pedestrian Surface Materials. PC - Classification: P5, or

AS/NZS 4586-2004, Slip Resistance Classification of New Pedestrian Surface Materials. PC – Dry slip resistance classification F, wet slip resistance classification V, slip resistance assessment group R12

b. Salt Spray Resistance

ASTM B117-97, Standard Practice for Operating Salt Spray (Fog) Apparatus. PC – Slight corrosion build up along scribes, no blistering or filiform growth along scribes.

c. Washability

ASTM D4828-94 (2003), Standard Test Methods for Practical Washability of Organic Coatings. PC – crayon, pen, 3M soil: all rating 10, being complete removal of soilant.

d. Rate of Burning

ASTM D635-03, Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position. PC – Time of burn 0 seconds, does not burn.

e. Surface Flammability

ASTM E162-02, Standard Test Method for Surface Flammability of Materials Using a Radiant Heat Energy Source. PC – Flame spread index 7.6, ignites with difficulty.

f. Toxicity

Bombardier Toxic Gas Generation Test SMP800-C. PC – Pass.

g. Radioactivity

ASTM D3648-2004, Standard Practices for the Measurement of Radioactivity. PC – Pass.

2.3 Components

A Step Nosing

Description:

Aluminium (aluminum) nosing incorporating anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full

lengths of 2450mm or 3060mm.

B Step Edge Contrast

Description:

Aluminium (aluminum) base strip incorporating anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.

Click here to view Ecoglo Anti-Slip Products

Product Code	Description
F14-170 Step Nosing	75mm x 10mm aluminium (aluminum) nosing incorporating 64mm wide black anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F14-180 Step Nosing	75mm x 10mm aluminium (aluminum) nosing incorporating 64mm wide yellow anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm
F15-170 Step Nosing	75mm x 33mm aluminium (aluminum) nosing incorporating 64mm wide black anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F15-180 Step Nosing	75mm x 33mm aluminium (aluminum) nosing incorporating 64mm wide yellow anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F9-170 Step Nosing	50mm x 25mm aluminium (aluminum) nosing incorporating 37mm wide black anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
F9-180 Step Nosing	50mm x 25mm aluminium (aluminum) nosing incorporating 37mm wide yellow anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm.
N15-070 Step Edge Contrast	64mm wide aluminium (aluminum) base strip incorporating black anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm
N15-080 Step Edge Contrast	64mm wide aluminium (aluminum) base strip incorporating yellow anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm
N2-070 Step Edge Contrast	37mm wide aluminium (aluminum) base strip incorporating black anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm
N2-080 Step Edge Contrast	37mm wide aluminium (aluminum) base strip incorporating yellow anti-slip strip. Available in lengths from 800mm – 1500mm in 100mm increments, or in full lengths of 2450mm or 3060mm

Part 3 Execution

3.1 Examination

A Before installation, examine surfaces on which the work of this section depends. Notify [Contractor] if substrates do not comply with requirements of this section.

B Do not proceed with work of this Section until all unsatisfactory conditions have been corrected, if any.

C Commencement of Work will imply acceptance of surfaces.

3.2 Preparation

A Clean surfaces to remove dirt, dust, grease, oil, loose material, frost, paint, coatings, or other matter that may affect bonding or installation of photoluminescent products.

B Test substrates for fit with products before using adhesives or mechanical fastening.

3.3 Installation

A Unless otherwise indicated in the specifications, install products in accordance with manufacturer’s instructions. Obtain written instructions directly from manufacturer.

3.4 Cleaning

A At completion of installation, clean soiled product surfaces in accordance with manufacturer’s instructions.

3.5 Waste Management and Disposal

A Separate waste materials for [reuse] [and] [recycling] at nearest used building materials facility.

3.6 Protection

A Do not allow heavy objects to come into contact with installed products.

End of Section

Appendices to

Ecoglo International Ltd
Technical Manual
for
Anti-slip Products

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Contents:

Appendix 1

Ecoglo International Ltd

Product Data Sheets

Product Data Sheet - Step Nosing F14-170

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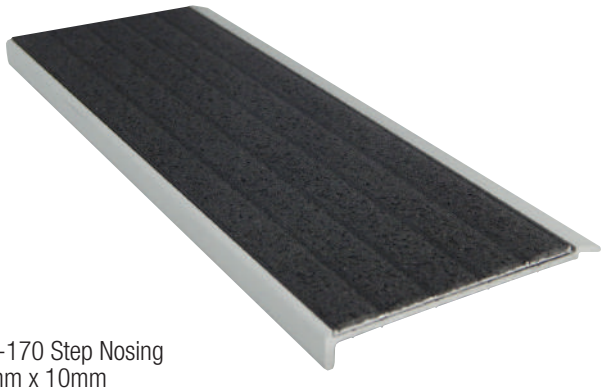
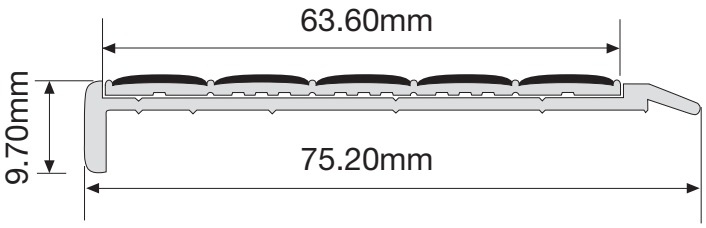


F14-170 Step Nosing
75mm x 10mm



The F14-170 Step Nosing is designed to both define the step edge and help prevent slips and falls in all weather conditions.

COMPLIANCE

The Step Nosing is suitable for use indoors and outdoors. The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties – UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5
Salt Spray Resistance – ASTM B117: Pass
Washability – ASTM D4828: Pass
Rate of Burning – ASTM D635: Pass
Surface Flammability - ASTM E162: Pass
Toxicity - Bombardier Toxic Gas Generation Test SMP800-C: Pass
Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

The F14-170 Step Nosing profile consists of 6060T5 aluminium extrusion, anodized (natural/silver colour) to 20 microns thickness.

Ecoglo N15-070 Step Edge Contrast is adhesively fixed into the extrusion. The insert is manufactured from extruded 6063T5 aluminium section. Silicon Carbide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

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INSTALLATION

The F14-170 Step Nosing is installed with hidden fixers and can be used on a range of substrates including concrete, timber, tiles, vinyl, steel and checker plate. Uni clamp assemblies can be used for installation onto steel mesh steps.

Maximum recommended length for outdoor installation is 1500mm.

Installation is a two-step process and needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
F14-170-800	Step Nosing 75mm x 10mm	800mm
F14-170-900	Step Nosing 75mm x 10mm	900mm
F14-170-1000	Step Nosing 75mm x 10mm	1000mm
F14-170-1100	Step Nosing 75mm x 10mm	1100mm
F14-170-1200	Step Nosing 75mm x 10mm	1200mm
F14-170-1300	Step Nosing 75mm x 10mm	1300mm
F14-170-1400	Step Nosing 75mm x 10mm	1400mm
F14-170-1500	Step Nosing 75mm x 10mm	1500mm

Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63917-514-6803
+63968-356-4773
Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Step Nosing F14-180

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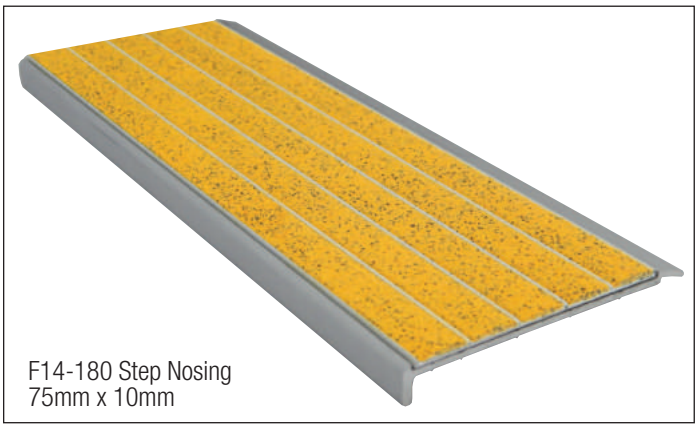
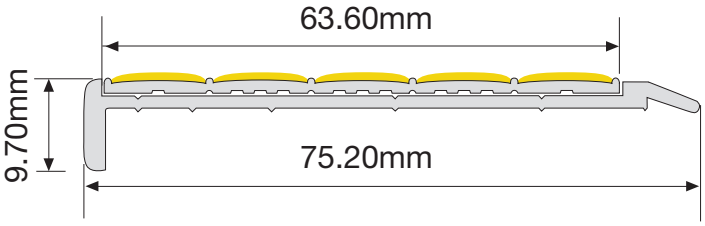


F14-180 Step Nosing
75mm x 10mm



The F14-180 Step Nosing is designed to both define the step edge and help prevent slips and falls in all weather conditions.

COMPLIANCE

The Step Nosing is suitable for use indoors and outdoors. The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties – UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5
Salt Spray Resistance – ASTM B117: Pass
Washability – ASTM D4828: Pass
Rate of Burning – ASTM D635: Pass
Surface Flammability - ASTM E162: Pass
Toxicity - Bombardier Toxic Gas Generation Test SMP800-C: Pass
Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

The F14-180 Step Nosing profile consists of 6060T5 aluminium extrusion, anodized (natural/silver colour) to 20 microns thickness.

Ecoglo N15-080 Step Edge Contrast is adhesively fixed into the extrusion. The insert is manufactured from extruded 6063T5 aluminium section. Silicon carbide and/or aluminium oxide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

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INSTALLATION

The F14-180 Step Nosing is installed with hidden fixers and can be used on a range of substrates including concrete, timber, tiles, vinyl, steel and checker plate. Uni clamp assemblies can be used for installation onto steel mesh steps.

Maximum recommended length for outdoor installation is 1500mm.

Installation is a two step process and needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
F14-180-800	Step Nosing 75mm x 10mm	800mm
F14-180-900	Step Nosing 75mm x 10mm	900mm
F14-180-1000	Step Nosing 75mm x 10mm	1000mm
F14-180-1100	Step Nosing 75mm x 10mm	1100mm
F14-180-1200	Step Nosing 75mm x 10mm	1200mm
F14-180-1300	Step Nosing 75mm x 10mm	1300mm
F14-180-1400	Step Nosing 75mm x 10mm	1400mm
F14-180-1500	Step Nosing 75mm x 10mm	1500mm

Contact

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Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Step Nosing F15-170

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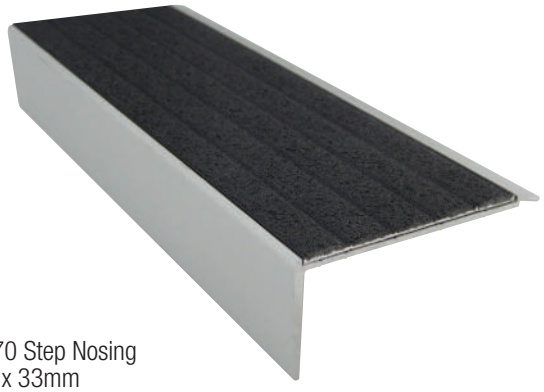
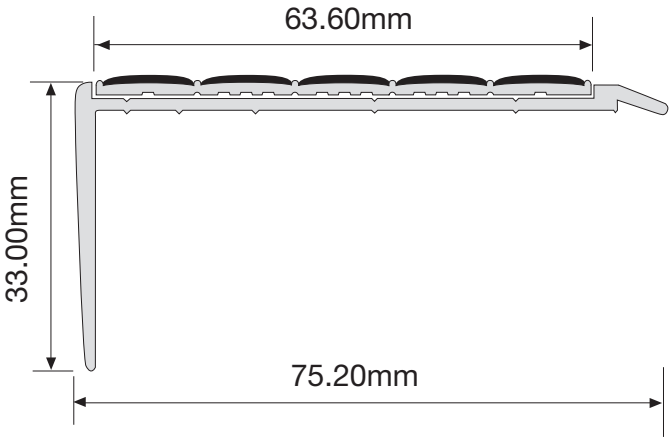


F15-170 Step Nosing
75mm x 33mm



The F15-170 Step Nosing is designed to both define the step edge and help prevent slips and falls in all weather conditions.

COMPLIANCE

The Step Nosing is suitable for use indoors and outdoors. The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties – UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5
Salt Spray Resistance – ASTM B117: Pass
Washability – ASTM D4828: Pass
Rate of Burning – ASTM D635: Pass
Surface Flammability - ASTM E162: Pass
Toxicity - Bombardier Toxic Gas Generation Test SMP800-C: Pass
Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

The F15-170 Step Nosing profile consists of 6060T5 aluminium extrusion, anodized (natural/silver colour) to 20 microns thickness.

Ecoglo N15-070 Step Edge Contrast is adhesively fixed into the extrusion. The insert is manufactured from extruded 6063T5 aluminium section. Silicon Carbide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

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INSTALLATION

The F15-170 Step Nosing is installed with hidden fixers and can be used on a range of substrates including concrete, timber, tiles, vinyl, steel and checker plate. Uni clamp assemblies can be used for installation onto steel mesh steps.

Maximum recommended length for outdoor installation is 1500mm.

Installation is a two-step process and needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
F15-170-800	Step Nosing 75mm x 33mm	800mm
F15-170-900	Step Nosing 75mm x 33mm	900mm
F15-170-1000	Step Nosing 75mm x 33mm	1000mm
F15-170-1100	Step Nosing 75mm x 33mm	1100mm
F15-170-1200	Step Nosing 75mm x 33mm	1200mm
F15-170-1300	Step Nosing 75mm x 33mm	1300mm
F15-170-1400	Step Nosing 75mm x 33mm	1400mm
F15-170-1500	Step Nosing 75mm x 33mm	1500mm

Contact

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Product Data Sheet - Step Nosing F15-180

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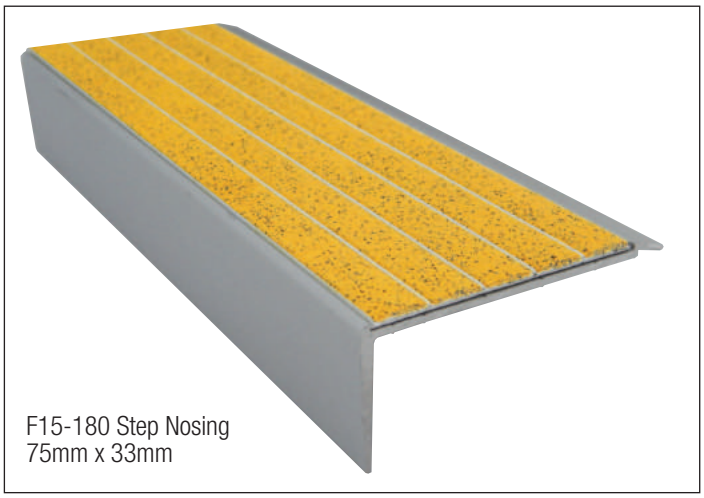
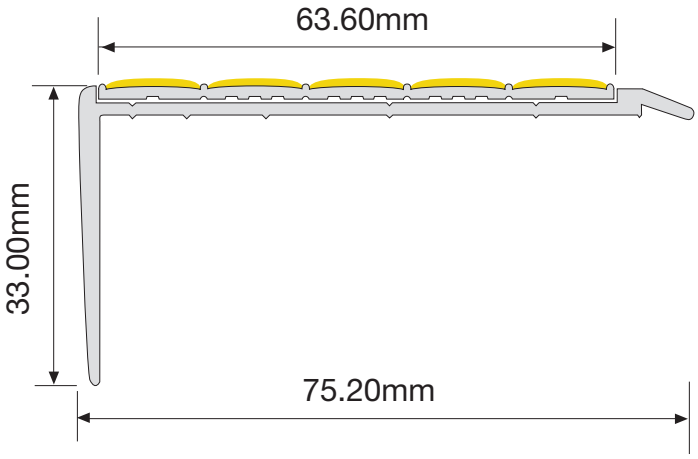


F15-180 Step Nosing
75mm x 33mm



The F15-180 Step Nosing is designed to both define the step edge and help prevent slips and falls in all weather conditions.

COMPLIANCE

The Step Nosing is suitable for use indoors and outdoors. The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties – UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5
Salt Spray Resistance – ASTM B117: Pass
Washability – ASTM D4828: Pass
Rate of Burning – ASTM D635: Pass
Surface Flammability - ASTM E162: Pass
Toxicity - Bombardier Toxic Gas Generation Test SMP800-C: Pass
Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

The F15-180 Step Nosing profile consists of 6060T5 aluminium extrusion, anodized (natural/silver colour) to 20 microns thickness.

Ecoglo N15-080 Step Edge Contrast is adhesively fixed into the extrusion. The insert is manufactured from extruded 6063T5 aluminium section. Silicon carbide and/or aluminium oxide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

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INSTALLATION

The F15-180 Step Nosing is installed with hidden fixers and can be used on a range of substrates including concrete, timber, tiles, vinyl, steel and checker plate. Uni clamp assemblies can be used for installation onto steel mesh steps.

Maximum recommended length for outdoor installation is 1500mm.

Installation is a two-step process and needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
F15-180-800	Step Nosing 75mm x 33mm	800mm
F15-180-900	Step Nosing 75mm x 33mm	900mm
F15-180-1000	Step Nosing 75mm x 33mm	1000mm
F15-180-1100	Step Nosing 75mm x 33mm	1100mm
F15-180-1200	Step Nosing 75mm x 33mm	1200mm
F15-180-1300	Step Nosing 75mm x 33mm	1300mm
F15-180-1400	Step Nosing 75mm x 33mm	1400mm
F15-180-1500	Step Nosing 75mm x 33mm	1500mm

Contact

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Product Data Sheet - Step Edge Contrast N15-070

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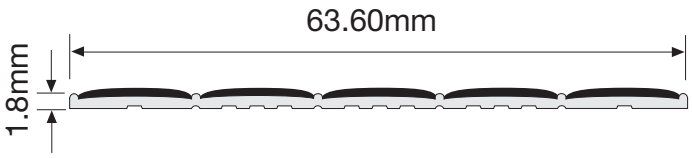
N15-070 Step Edge Contrast 64mm



The N15-070 Step Edge Contrast is designed to both define the step edge and help prevent slips and falls in all weather conditions.

PERFORMANCE

The Step Edge Contrast is suitable for use indoors and outdoors.
The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties –
UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5

Salt Spray Resistance – ASTM B117: Pass

Washability – ASTM D4828: Pass

Rate of Burning – ASTM D635: Pass

Surface Flammability – ASTM E162: Pass

Toxicity – Bombardier Toxic Gas Generation Test SMP800-C: Pass

Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

Ecoglo N15-070 Step Edge Contrast is manufactured from extruded 6063T5 aluminium section. Silicon Carbide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

HTC HIGH TEMPERATURE CURING

INSTALLATION

Indoors the N15-070 Step Edge Contrast can be surface mounted on all smooth surfaces. Outdoors the N15-070 can be surface mounted onto concrete.

Maximum recommended length for outdoor installation is 1500mm.

Installation needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

Screws can be used if adhesion is difficult.
(See order codes below for the product that best suits).

N15-070 For polyurethane adhesive fixing
N15-070P Punched for screw fixing

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
N15-070-800	Step Edge Contrast 64mm	800mm
N15-070-900	Step Edge Contrast 64mm	900mm
N15-070-1000	Step Edge Contrast 64mm	1000mm
N15-070-1100	Step Edge Contrast 64mm	1100mm
N15-070-1200	Step Edge Contrast 64mm	1200mm
N15-070-1300	Step Edge Contrast 64mm	1300mm
N15-070-1400	Step Edge Contrast 64mm	1400mm
N15-070-1500	Step Edge Contrast 64mm	1500mm

Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
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Cell: +63917-514-6803
+63968-356-4773
Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Step Edge Contrast N15-080

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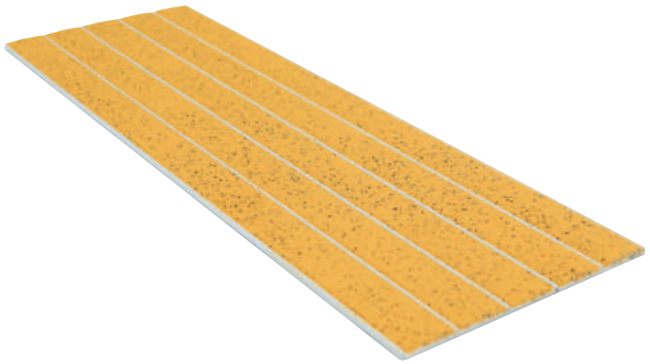
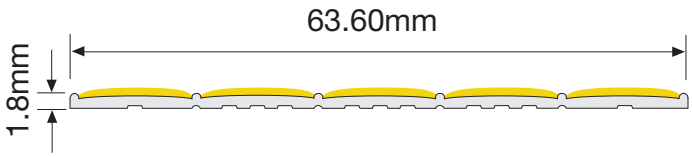


N15-080 Step Edge Contrast 64mm



The N15-080 Step Edge Contrast is designed to both define the step edge and help prevent slips and falls in all weather conditions.

PERFORMANCE

The Step Edge Contrast is suitable for use indoors and outdoors.
The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties –
UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5

Salt Spray Resistance – ASTM B117: Pass

Washability – ASTM D4828: Pass

Rate of Burning – ASTM D635: Pass

Surface Flammability – ASTM E162: Pass

Toxicity – Bombardier Toxic Gas Generation Test SMP800-C: Pass

Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

Ecoglo N15-080 Step Edge Contrast is manufactured from extruded 6063T5 aluminium section. Silicon Carbide and/or aluminium oxide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

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INSTALLATION

Indoors the N15-080 Step Edge Contrast can be surface mounted on all smooth surfaces. Outdoors the N15-080 can be surface mounted onto concrete.

Maximum recommended length for outdoor installation is 1500mm.

Installation needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

Screws can be used if adhesion is difficult.
(See order codes below for the product that best suits).

N15-080 For polyurethane adhesive fixing
N15-080P Punched for screw fixing

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
N15-080-800	Step Edge Contrast 64mm	800mm
N15-080-900	Step Edge Contrast 64mm	900mm
N15-080-1000	Step Edge Contrast 64mm	1000mm
N15-080-1100	Step Edge Contrast 64mm	1100mm
N15-080-1200	Step Edge Contrast 64mm	1200mm
N15-080-1300	Step Edge Contrast 64mm	1300mm
N15-080-1400	Step Edge Contrast 64mm	1400mm
N15-080-1500	Step Edge Contrast 64mm	1500mm

Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos,
Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63917-514-6803
+63968-356-4773
Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Step Nosing F9-170

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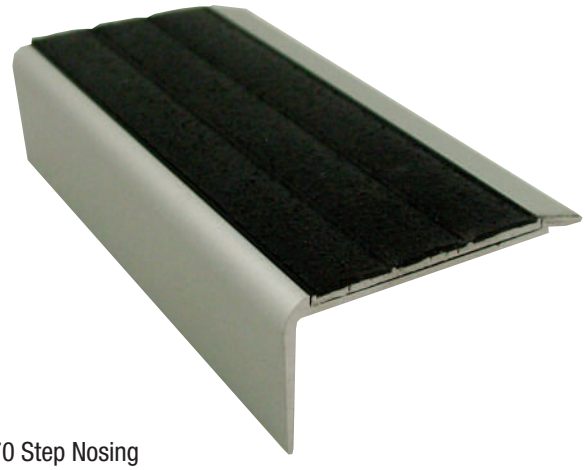
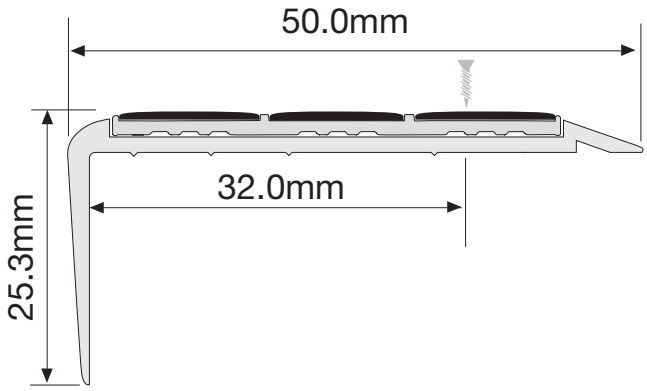


F9-170 Step Nosing
anodised 20 microns



The F9-170 Step Nosing is designed to both define the step edge and help prevent slips and falls in all weather conditions.

COMPLIANCE

The Step Nosing is suitable for use indoors and outdoors. The anti-slip material provides all weather protection from slips and falls.

Anti-Slip Properties - UL410 Standard for Slip Resistance for Floor Surface Materials

AS/NZS 4586-2004 Classification:
Dry: F Wet: V Ramp: R12. AS4586-2013 Classification: P5

UV Resistance - Loss of luminance after 1000 hrs ASTM G-155 Cycle 1 exposure: <10%: Pass

Salt Spray Resistance - ASTM B117: Pass

Washability - ASTM D4828: Pass

Rate of Burning - ASTM D635: Pass

Surface Flammability - ASTM E162: Pass

Toxicity - Bombardier Toxic Gas Generation Test SMP800-C: Pass

Radioactivity - ASTM D3648: Pass

High Temperature Curing: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

The Step Nosing profile consists of 6060T5 aluminium extrusion, anodized (natural/silver colour) to 20 microns thickness.

Ecoglo N2-070 Anti-Slip/Step Edge Contrast is adhesively fixed into the extrusion. N2-070 is manufactured from extruded 6063T5 aluminium section. Silicon Carbide anti-slip materials and custom made photoluminescent pigment are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

HTC
HIGH TEMPERATURE CURING

INSTALLATION

The F9-170 Step Nosing is installed with hidden fixers and can be used on a range of substrates including concrete, timber, tiles, vinyl, steel and checker plate. Uni clamp assemblies can be used for installation onto steel mesh steps.

Maximum recommended length for outdoor installation is 1500mm.

Installation is a two-step process and needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
F9-170-800	Step Nosing 50mm x 25mm	800mm
F9-170-900	Step Nosing 50mm x 25mm	900mm
F9-170-1000	Step Nosing 50mm x 25mm	1000mm
F9-170-1100	Step Nosing 50mm x 25mm	1100mm
F9-170-1200	Step Nosing 50mm x 25mm	1200mm
F9-170-1300	Step Nosing 50mm x 25mm	1300mm
F9-170-1400	Step Nosing 50mm x 25mm	1400mm
F9-170-1500	Step Nosing 50mm x 25mm	1500mm

Contact

Ecoglo Fire Protection Product Trading

Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63917-514-6803
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Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Step Nosing F9-180

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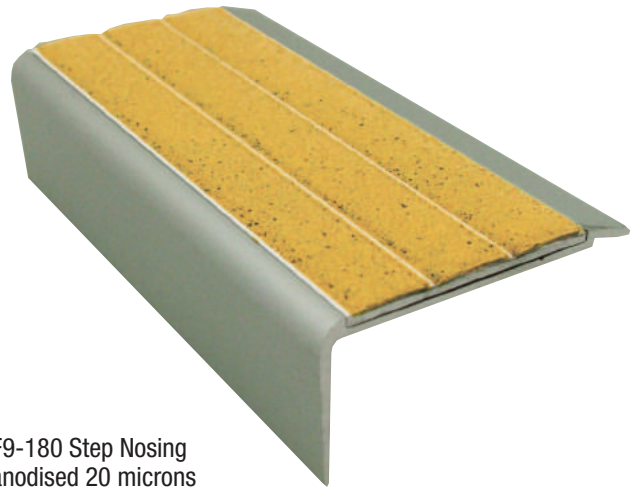
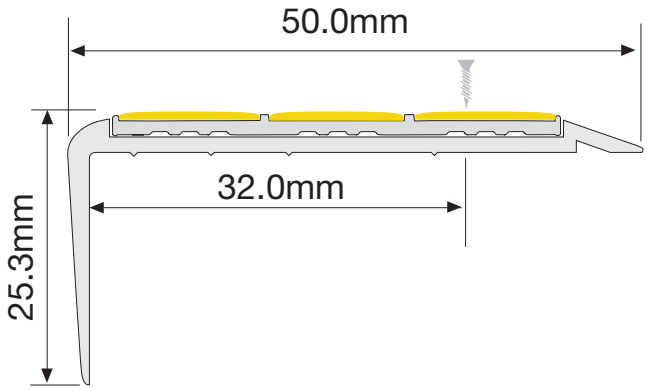


F9-180 Step Nosing
anodised 20 microns



The F9-180 Step Nosing is designed to both define the step edge and help prevent slips and falls in all weather conditions.

COMPLIANCE

The Step Nosing is suitable for use indoors and outdoors. The anti-slip material provides all weather protection from slips and falls.

Anti-Slip Properties - UL410 Standard for Slip Resistance for Floor Surface Materials

AS/NZS 4586-2004 Classification:
Dry: F Wet: V Ramp: R12. AS4586-2013 Classification: P5

UV Resistance - Loss of luminance after 1000 hrs ASTM G-155 Cycle 1 exposure: <10%: Pass

Salt Spray Resistance - ASTM B117: Pass

Washability - ASTM D4828: Pass

Rate of Burning - ASTM D635: Pass

Surface Flammability - ASTM E162: Pass

Toxicity - Bombardier Toxic Gas Generation Test SMP800-C: Pass

Radioactivity - ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

The Step Nosing profile consists of 6060T5 aluminium extrusion, anodized (natural/silver colour) to 20 microns thickness.

Ecoglo N2-080 Anti-Slip/Step Edge Contrast is adhesively fixed into the extrusion. N2-080 is manufactured from extruded 6063T5 aluminium section. Silicon carbide and/or aluminium oxide anti-slip materials and custom made photoluminescent pigment are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

HTC
HIGH TEMPERATURE CURING

INSTALLATION

The F9-180 Step Nosing is installed with hidden fixers and can be used on a range of substrates including concrete, timber, tiles, vinyl, steel and checker plate. Uni clamp assemblies can be used for installation onto steel mesh steps.

Maximum recommended length for outdoor installation is 1500mm.

Installation is a two-step process and needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
F9-180-800	Step Nosing 50mm x 25mm	800mm
F9-180-900	Step Nosing 50mm x 25mm	900mm
F9-180-1000	Step Nosing 50mm x 25mm	1000mm
F9-180-1100	Step Nosing 50mm x 25mm	1100mm
F9-180-1200	Step Nosing 50mm x 25mm	1200mm
F9-180-1300	Step Nosing 50mm x 25mm	1300mm
F9-180-1400	Step Nosing 50mm x 25mm	1400mm
F9-180-1500	Step Nosing 50mm x 25mm	1500mm

Contact

Ecoglo Fire Protection Product Trading

Address: 36-C Gloria Street, Barangay San Carlos, Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63917-514-6803
+63968-356-4773
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Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Anti-Slip/Step Edge Contrast N2-070

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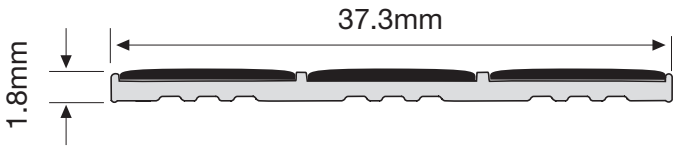
N2-070 Anti-Slip/Step Edge Contrast 37mm



The N2-070 Anti-Slip/Step Edge Contrast is designed to both define the step edge and help prevent slips and falls in all weather conditions.

PERFORMANCE

N2-070 is suitable for use indoors and outdoors.
The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties –
UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5

Salt Spray Resistance – ASTM B117: Pass

Washability – ASTM D4828: Pass

Rate of Burning – ASTM D635: Pass

Surface Flammability – ASTM E162: Pass

Toxicity – Bombardier Toxic Gas Generation Test SMP800-C: Pass

Radioactivity – ASTM D3648: Pass

High Temperature Curing: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

Ecoglo N2-070 is manufactured from extruded 6063T5 aluminium section. Silicon Carbide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

HTC HIGH TEMPERATURE CURING

INSTALLATION

Indoors N2-070 can be surface mounted on all smooth surfaces.
Outdoors the N2-070 can be surface mounted onto concrete.

Maximum recommended length for outdoor installation is 1500mm.

Installation needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

Screws can be used if adhesion is difficult.
(See order codes below for the product that best suits).

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
N2-070-800	Anti-Slip/Step Edge Contrast 37mm	800mm
N2-070-900	Anti-Slip/Step Edge Contrast 37mm	900mm
N2-070-1000	Anti-Slip/Step Edge Contrast 37mm	1000mm
N2-070-1100	Anti-Slip/Step Edge Contrast 37mm	1100mm
N2-070-1200	Anti-Slip/Step Edge Contrast 37mm	1200mm
N2-070-1300	Anti-Slip/Step Edge Contrast 37mm	1300mm
N2-070-1400	Anti-Slip/Step Edge Contrast 37mm	1400mm
N2-070-1500	Anti-Slip/Step Edge Contrast 37mm	1500mm

Contact

Ecoglo Fire Protection Product Trading

Address: 36-C Gloria Street, Barangay San Carlos,
Binangonan Rizal 1940, Philippines
Office: +632-8802-4760
Cell: +63917-514-6803
+63968-356-4773
Email: keith.phillips@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Product Data Sheet - Anti-Slip/Step Edge Contrast N2-080

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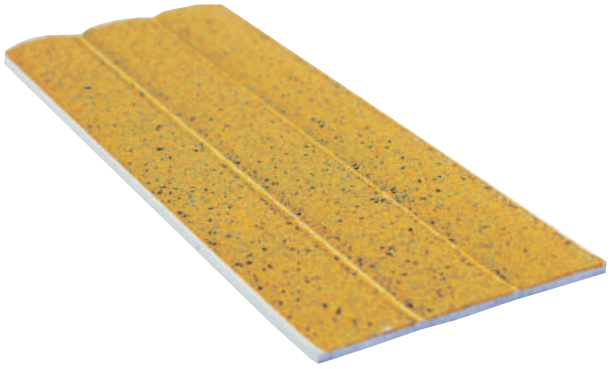
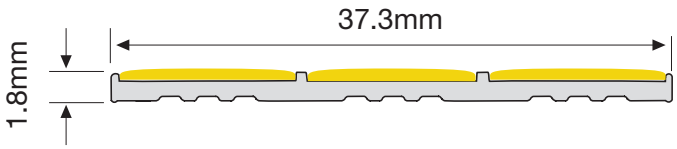


N2-080 Anti-Slip/Step Edge Contrast 37mm



The N2-080 Anti-Slip/Step Edge Contrast is designed to both define the step edge and help prevent slips and falls in all weather conditions.

PERFORMANCE

N2-080 is suitable for use indoors and outdoors.
The anti-slip material provides all weather protection from slips and falls.

Anti-slip Properties –
UL410 Standard for Slip Resistance for Floor Surface Materials
AS/NZS 4586-2004 Classification: Dry: F Wet: V Ramp: R12
AS 4586-2013 Classification: P5

Salt Spray Resistance – ASTM B117: Pass

Washability – ASTM D4828: Pass

Rate of Burning – ASTM D635: Pass

Surface Flammability – ASTM E162: Pass

Toxicity – Bombardier Toxic Gas Generation Test SMP800-C: Pass

Radioactivity – ASTM D3648: Pass

SUPPLY

The product is available in 100mm increments from 800mm to 1500mm. Custom lengths can also be fabricated on site from 2.45 metre and 3.06 metre lengths.

COMPOSITION

Ecoglo N2-080 is manufactured from extruded 6063T5 aluminium section. Silicon carbide and/or aluminium oxide anti-slip materials are embedded in thermoset polyester carriers to integrally bond the active ingredients into the aluminium following curing at high temperature.

HTC HIGH TEMPERATURE CURING

INSTALLATION

Indoors N2-080 can be surface mounted on all smooth surfaces.
Outdoors the N2-080 can be surface mounted onto concrete.

Maximum recommended length for outdoor installation is 1500mm.

Installation needs to be carried out strictly in accordance with the Ecoglo installation instructions.

Consult Installation Instructions on website for full details and surface preparation.

Screws can be used if adhesion is difficult.
(See order codes below for the product that best suits).

PRODUCT CODE	PRODUCT DESCRIPTION	PRODUCT LENGTH
N2-080-800	Anti-Slip/Step Edge Contrast 37mm	800mm
N2-080-900	Anti-Slip/Step Edge Contrast 37mm	900mm
N2-080-1000	Anti-Slip/Step Edge Contrast 37mm	1000mm
N2-080-1100	Anti-Slip/Step Edge Contrast 37mm	1100mm
N2-080-1200	Anti-Slip/Step Edge Contrast 37mm	1200mm
N2-080-1300	Anti-Slip/Step Edge Contrast 37mm	1300mm
N2-080-1400	Anti-Slip/Step Edge Contrast 37mm	1400mm
N2-080-1500	Anti-Slip/Step Edge Contrast 37mm	1500mm

Contact

Ecoglo Fire Protection Product Trading
Address: 36-C Gloria Street, Barangay San Carlos,
Binangonan Rizal 1940, Philippines
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+63968-356-4773
Email: InfoPHL@ecoglo.com
Web: www.ecoglo.ph www.EcogloAsia.com www.EcogloVenues.com

Appendix 2

Ecoglo International Ltd

Installation Instructions

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Installation Instructions For

Step Nosing F Series

Two-Part Installation Concrete and Timber

Ecoglo markers are to be installed only where there will be sufficient natural or artificial light to keep them charged whenever the building is occupied.

If unsure, contact Ecoglo

Ecoglo International Limited
Email: info@ecoglo.com
Ph: +64 3 348 3781
www.ecoglo.com

Step Nosing - F Series Two-Part Installation Concrete and Timber

1. Preparation of Surface

- Brush the surface clean of dust and debris. If necessary, clean with an industrial cleaner.
- Remove any paint or sealant and then allow the surface to dry.
- It is better for adhesion if timber surfaces are dry.

Steps with exposed sides:
Ensure the nosing is set back from exposed side by at least 20mm to ensure the outer edge of the nosing does not present a sharp hazard.

Built-in steps, Installed outdoors:
Leave a 3mm gap between the nosing and the built-in sides, to allow for thermal expansion, and water drainage.

NOTE: *The maximum recommended length for installation in outdoor situations is 1.5 metres. A 3mm expansion / drainage gap must be left between lengths.*

2. Alignment (for installation onto more than one step)

- Place one piece of step nosing on the top step and one on the bottom step.
- Run a string line from the left edge of the top nosing to the left edge of the bottom nosing.
- This will give you a straight, true line.

3. Locating Holes for Fixers (for Timber skip to step 5)

- Place the nosing firmly against the riser of the step.
- Line it up with your string line.
- Mark the location of the drill holes with the drill.
- Remove the nosing.

NOTE: *F15, F14 and F9 nosings come pre-drilled with holes every 100mm. You only require 4 fixers per metre. Where appropriate, fixers should be zigzagged across the pre-drilled holes to give maximum support to both sides of the nosing.*

4. Drilling holes for fixers (for Timber skip to step 5)

- Using a 6mm masonry bit, and a concrete drill, drill the hole that will house the plastic anchor.
- Wipe away any dust or debris.
- Place the plastic anchor fully in to the holes.

5. Applying Adhesive

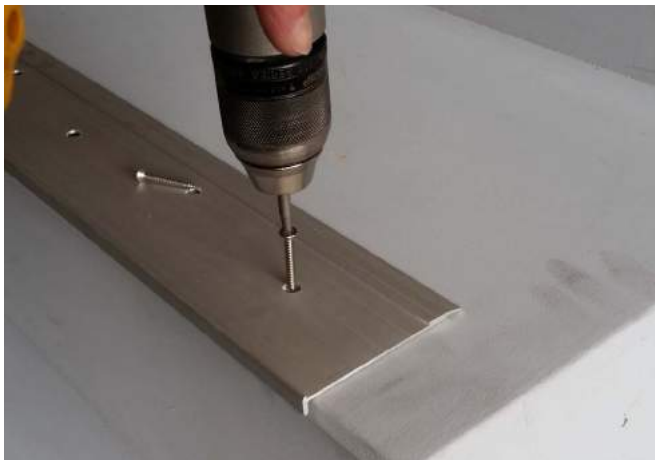
- Lay a 3mm bead of polyurethane adhesive (such as Wurth KD Bond and Seal or Bostik Seal n Flex FC) in a wave pattern over the full length of the underside of the nosing.
- Keep the adhesive clear of the outside edge and the drill holes.

Step Nosing - F Series

Two-Part Installation Concrete and Timber

6. Securing the nosing profile

- Place the nosing firmly back onto the step, lining up the drill holes.
- Tighten the screws firmly using a battery hand drill- this will create a strong, even bond.
- For fixing on to wooden substrate follow the previous instructions but the plugs are not required.



Adhesive Usage:
11 metres per 600ml sausage

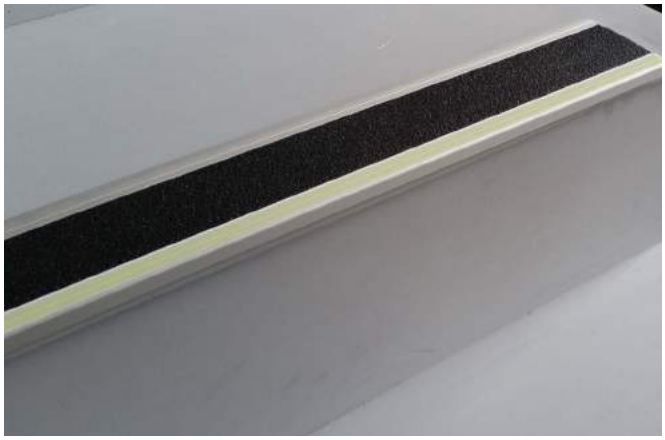
Ecoglo supply screw fixers with all orders and can also supply Wurth KD Bond and Seal in 600ml Sausage form with Applicator Gun.

7. Fixing Insert Strip

- Check nosing extrusion channel is free from dust, dirt, grease and moisture.
- Dust or wipe with methylated spirits or damp cloth if required.
- Lay a zigzag of adhesive, 1mm deep, 3mm wide on to the strip.
- Ensure that you don't over apply adhesive as it will spill out once the insert is placed into the nosing.

8. Insert strip into the nosing

- Line up the strip insert then place firmly onto the nosing.
- Press in place to ensure even contact, between the adhesive, and the surface of the channel.
- Use a roller or your foot to apply firm downward pressure.
- Use an alcohol wipe to remove any spill over of adhesive.



9. Curing of Adhesive

- Allow approximately 24 hours for adhesive to cure.

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Installation Instructions For

Step Edge Contrast E Series and N Series

Concrete and Timber

These instructions also apply to G6-003 Guidance Strips when used on steps

Ecoglo markers are to be installed only where there will be sufficient natural or artificial light to keep them charged whenever the building is occupied.

If unsure, contact Ecoglo

Ecoglo International Limited
Email: info@ecoglo.com
Ph: +64 3 348 3781
www.ecoglo.com

Step Edge Contrast - E Series and N Series Concrete and Timber

And G6-003 Guidance Strips when used on steps

1. Preparation of Surface

- Thoroughly clean the surface with industrial strength cleaner if necessary.
- Allow surface to dry.
- **If painted or coated, remove using an angle grinder with abrasive flap disc.**
- Brush/vacuum off the dust.
- Wipe surface with acetone.

Note: Installation onto Concrete Surfaces

- It is preferable to use adhesive only for concrete installations. The adhesive will allow some movement to compensate for thermal contraction and expansion and will provide durable adhesion to the concrete substrate.

** Where adhesive only installation is preferred on surfaces that have a sealer applied (eg concrete, exposed aggregate and some tiles) a test patch should be laid and allowed to temperature cycle over a minimum of 14 days to ensure a good bond is achieved.*
If the adhesive does not hold then mechanical fixers should be used.
If mechanical fixing is not practical due to potential damage to the substrate please contact Ecoglo.

2. Alignment of the Strips

- Mark 50mm from the left edge of the top step.
- Mark 50mm from the left edge of the bottom step.
- Place a string line between the marks to ensure the strip on each step will be correctly aligned.

- *The maximum recommended length for installation in outdoor situations is 1.5 metres.*
- *There must be a 3mm gap between lengths. This allows for thermal expansion in extreme weather conditions and also aids in water drainage off the step tread.*
- *Leave a 3mm gap either side of built-in steps*

3. Preparation of the Strip

- Clean back of contrast strip with soft cloth and if necessary use methylated spirits (or similar solvent) to remove oil or grease
- Allow to dry for approximately 1 minute.

(For installations requiring adhesive & fixers go to step 8)

4. Applying the Adhesive

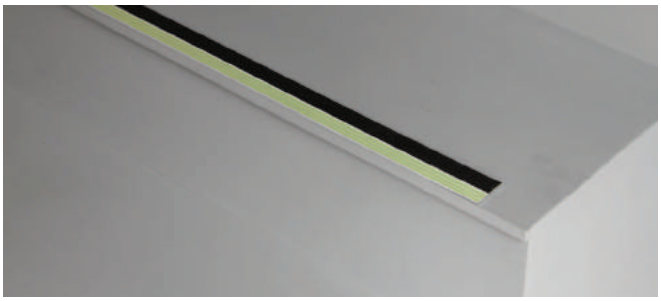
- Apply a 3mm zigzag bead of polyuretane adhesive (such as Wurth KD Bond and Seal or Bostik Seal n Flex FC) to the back of the strip, 3mm in from the edges.
- Continue along the length of the strip.

Adhesive Usage:
E2/N2 Series - 30 metres per 600ml
E3/E4/N3 Series - 25 metres per 600ml
E14/E15/N15 Series - 22 metres per 600ml
G6-003 - 30 metres per 600ml

Ecoglo can supply Wurth KD Bond and Seal in 600ml Sausage form with Applicator Gun.

5. Placement of the Strip

- Line up the strip with your alignment marks and position approximately 2-3mm back from the front straight edge of the step.
- Place in position with the photoluminescent (light green) component of the strip to the leading edge of the step (see image below).



Steps with exposed sides:
Ensure the nosing is set back from exposed side by at least 20mm to ensure the outer edge of the nosing does not present a sharp hazard.

Tile Steps
If the tiles are not perfectly aligned then the contrast strip must be cut into pieces the width of each tile and placed so that the grout line is exposed.

Step Edge Contrast - E Series and N Series Concrete and Timber

And G6-003 Guidance Strips when used on steps

6. Apply Pressure to the Strip

- Apply even pressure to spread the adhesive beneath the strip using a hand roller.
- If necessary stand on each strip to ensure good contact between the strip and the step.

7. Allow the Adhesive to Cure

- Immediately following installation close off the area for a period of 8 hours to avoid the Ecoglo strip being moved whilst the adhesive is in the early stages of "cure".
- Wait until adhesive has fully cured (allow at least 24 hours) before trimming any excess from each strip with a sharp blade.

8. Installations requiring Adhesive and Fixers

a. Outdoor Timber installations - 2 stage process

Note: Indoor installations only require adhesive

For outdoor timber installations both adhesive and fixers should be used because installation onto outdoor timber surfaces varies due to the uneven nature of timber, the various types of timber (eg pine or kwila), the protective coating (eg paint or sealer) and seasonal temperature variances.

Stage 1:

- Apply adhesive as per steps 3-4 taking care to keep adhesive away from pre drilled holes.
- Place strip as per steps 5-6.
- Leave the adhesive to cure for 7 days before installing the fixers.

Stage 2:

- Place a screw fixer into each hole and drill in securely using a battery drill.
- Do not fully tighten the fixers to avoid compressing the adhesive.

For timber installations the strips should be pre-drilled through the anti-slip material. The table below shows the number of drill holes required to allow for the natural contraction and expansion of timber.

b. Concrete Installations

Note: Adhesive only is usually sufficient, however, if adhesive and fixers are preferred, follow the instructions below.
DO NOT use fixers without considering the effects of temperature variance and thermal expansion, especially outdoors. If in doubt contact Ecoglo.

- Position the strip approximately 2-3mm from the front straight edge of the step and using the pre-drilled holes mark where the fixers are to be placed.
- Using a 6mm masonry bit and a concrete drill, drill the hole that will house the plastic anchor.
- Wipe away any dust or debris.
- Place the anchor fully into the holes.
- Apply adhesive as per steps 3-4 taking care to keep adhesive away from the pre-drilled holes.
- Place strip as per steps 5-6.
- Place a screw fixer into each hole and drill in securely using a battery drill.
- Do not fully tighten the fixers to avoid compressing the adhesive.

Hole Drilling Specifications

Hole Drilling Specification	Less than 350mm	350mm - 650mm	650mm - 950mm	950mm - 1250mm	1250mm - 1500mm
Number of Holes	2	3	4	5	6

Holes for fixers are usually drilled as part of manufacturing. If for any reason the product was ordered, or supplied, without holes where fixers are required then Ecoglo recommend the hole spacings shown in the table above for maximum durability.

Step Edge Contrast - E Series Release tape pre—fitted **(indoor use only)**

And G6-003 Guidance Strips when used on steps

Note: Strips with pre-fitted release tape are suitable only for indoor use on steps which are not subject to daily use or heavy foot traffic. Surfaces must be level and thoroughly prepared.

If any doubts about use, please contact Ecoglo for advice at info@ecoglo.com.

1. Preparation of Surface

- Thoroughly clean the surface with industrial strength cleaner if necessary.
- Remove any loose paint or sealant and then allow surface to dry.
- If painted or coated, check that adhesive is compatible with the paint or seal coating. IF IN DOUBT REMOVE COATING

2. Alignment of the Strips

- Mark 50mm from the left edge of the top step.
- Mark 50mm from the left edge of the bottom step.
- Place a string line between the marks to ensure the strip on each step will be correctly aligned.
- Offer up the strip to the step it is to be attached to make sure both surfaces are parallel.

Note:
The maximum recommended length for installation is 1.5 metres.
Leave a 3mm gap either side of built-in steps.

3. Placement of Adhesive-backed Strip

- Carefully peel off the release-tape backing from the strip.
- Carefully line the strip up with any alignment marks.
- Press the strip firmly in place to ensure even contact between the adhesive tape and the surface to which it is being applied.

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Quality
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Appendix 3

Ecoglo International Ltd

Product Test Reports

Ecoglo International Ltd

Product Test Reports

for Anti-slip Products

Contents

Number of pages in this package ___9_

CLIENT INFORMATION	
Company Name	**ECOGLO INTERNATIONAL LTD.**
Address	77 Kingsley St Christchurch, 8023 New Zealand

AUDIT INFORMATION:			
Description of Tests	Per Standard No. UL 410	Edition/ Revision Date	Third Dated October 25, 2006
[X] Tests Conducted by +	Aaron Messinger Printed Name	*Aaron J. Messinger* Signature	
[ ] UL Staff witnessing testing (WTDP only) **[ ]**Authorized Signatory (CTDP, TPTDP, TCP)	Printed Name	Signature, and include date for CTDP, TPTDP, TCP	
Reviewed and accepted by qualified Project Handler	Printed Name	Signature	

[ ] The following tests conducted in accordance with UL _____ were considered representative of the same tests required by Canadian Standard, _____.

TESTS TO BE CONDUCTED:			
Test No.	Done	Test Name	**[ ]** Comments/Parameters **[ ]** Tests Conducted by ++
1	11/12/2018	SLIP RESISTANCE CHARACTERISTICS: WCM	

Instructions -
1 - When all tests are conducted by one person, name can be inserted here instead of including name on each page containing data.
2 - When test conducted by more than one person, name of person conducting the test can be inserted next to the test name instead of including name on each page containing data. Test dates may be recorded here instead of entering test dates on the individual datasheet pages.
3 - Indication of compliance is optional. See the datasheet for each test for compliance.
4 – Link to separate data files for a test can be inserted here. The link must be to a server that is accessible to UL staff, that provides for backup, required retention periods and a path, including file name that does not change and result in a broken link. Not applicable to DAP.

If noncompliant test results are obtained, provide this data to a qualified project handler for further processing.

Special Instructions -

[X] Unless specified otherwise in the individual Methods, the tests shall be conducted under the following ambient conditions. Confirmation of these conditions shall be recorded at the time the test is conducted.

Ambient Temperature, C	23 ± 2	Relative Humidity, %	50 ± 4	Barometric Pressure, mBar	±

[ ] No general environmental conditions are specified in the Standard(s) or have been identified that could affect the test results or measurements.

RISK ANALYSIS RELATED TO TESTING PERFORMANCE:

The following types of risks have been identified. Take necessary precautions. This list is not all inclusive.

[ ] Electric shock	**[ ]** Radiation
[ ] Energy related hazards	**[ ]** Chemical hazards
[ ] Fire	**[ ]** Noise
[ ] Heat related hazards	**[ ]** Vibration
[ ] Mechanical	**[X]** Other (Specify) **Slip Resistance**

TEST LOCATION: (To be completed by Staff Conducting the Testing)
[X]UL or Affiliate **[]**WTDP **[]**TPTDP
Company Name: **UL Verification Services.**
Address: Holland MI.

TEST EQUIPMENT INFORMATION

[X] UL test equipment information is recorded on Meter Use.

[ ] UL test equipment information is recorded on <<insert location and local laboratory equipment system identification.>>

Inst. ID No.	Instrument Type	Test Number +, Test Title or Conditioning	Function /Range	Last Cal. Date	Next Cal. Date

+ - If Test Number is used, the Test Number must be identified on the data sheet pages or on the Data Sheet Package cover page.

The following additional information is required when using client's or rented equipment. The Inst. ID No. below corresponds to the Inst. ID No. above.

Inst. ID No.	Make/Model/Serial Number/Asset No.

[ ] Test equipment information is recorded on UL's Laboratory Project Management (LPM)/Laboratory Equipment Management (LEM) database. (This statement may be selected only if datasheets are completed electronically at a UL facility).

TEST SAMPLE IDENTIFICATION:

The table below is provided to provide correlation of sample numbers to specific product related information. Refer to this table when a test identifies a test sample by "Sample No." only.

Sample Card No.	Date Received	[ ] Test No.	Sample No.	Manufacturer, Product Identification and Ratings
1856715	10/09/2018	1	1	ECOGLO INTERNATIONAL LTD, PL Path Marking Models E4-073 WCM
1856715	10/09/2018	1	2	ECOGLO INTERNATIONAL LTD, PL Path Marking Model E14-075 WCM

+ - If Test Number is used, the Test Number or Numbers the sample was used in must be identified on the data sheet pages or on the Data Sheet Package cover page.

[ ] Sampling Procedure -

SLIP RESISTANCE CHARACTERISTICS: (WCM)

WCM Material: Model E4-073

METHOD

[X] A sample of the material was tested as received after it was brushed or wiped clean to remove any surface contaminants.

[X] Additionally, a second sample of the material was tested after belt sanding with 1/2 (60) grit aluminum oxide paper for 1 minute and brushed or wiped clean to remove surface contaminants.

The slip resistance characteristics of the material were measured in accordance with the established and standardized practice of UL LLC and in accordance with the latest edition of the Standard for Slip Resistance of Floor Surface Materials, UL 410.

RESULTS

(As received)

Sample Orientation	Coefficient of Friction
First Quadrant	0.59
Adjacent Quadrant	0.54
180 degrees from First Quadrant	0.60
180 degrees from Adjacent Quadrant	0.54
Average	**0.56**

[X] The average static coefficient of friction of the four quadrants of the test sample **[was]** **[~~was not~~]** at least 0.50 and the individual static coefficients of friction **[was]** **[~~was not~~]** at least 0.45.

SLIP RESISTANCE CHARACTERISTICS: (WCM) (CONT'D)

WCM Material: Model E4-073

wide

(Belt Sanded)

Sample Orientation	Coefficient of Friction
First Quadrant	0.55
Adjacent Quadrant	0.68
180 degrees from First Quadrant	0.57
180 degrees from Adjacent Quadrant	0.69
Average	**0.62**

[X] The average static coefficient of friction of the four quadrants of the test sample **[was]** **[~~was not~~]** at least 0.50 and the individual static coefficients of friction **[was]** **[~~was not~~]** at least 0.45.

Note to Lab:
If the minimum and maximum run values vary by greater than 0.06, please re-conduct the test. If the second set minimum and maximum values vary greater than 0.06, please contact the engineer.

Slip Resistance Test Conditions

AMBIENT TEMPERATURE	**22.5°C**	Relative Humidity	**49.1%**

SLIP RESISTANCE CHARACTERISTICS: (WCM)

WCM
Material: Model E14-075

METHOD

[X] A sample of the material was tested as received after it was brushed or wiped clean to remove any surface contaminants.

[X] Additionally, a second sample of the material was tested after belt sanding with 1/2 (60) grit aluminum oxide paper for 1 minute and brushed or wiped clean to remove surface contaminants.

The slip resistance characteristics of the material were measured in accordance with the established and standardized practice of UL LLC and in accordance with the latest edition of the Standard for Slip Resistance of Floor Surface Materials, UL 410.

RESULTS

(As received)

Sample Orientation	Coefficient of Friction
First Quadrant	0.64
Adjacent Quadrant	0.56
180 degrees from First Quadrant	0.68
180 degrees from Adjacent Quadrant	0.52
Average	**0.60**

[X] The average static coefficient of friction of the four quadrants of the test sample **[was]** **[~~was not~~]** at least 0.50 and the individual static coefficients of friction **[was]** **[~~was not~~]** at least 0.45.

SLIP RESISTANCE CHARACTERISTICS: (WCM) (CONT'D)

Material: Model E14-075

(Belt Sanded)

Sample Orientation	Coefficient of Friction
First Quadrant	0.55
Adjacent Quadrant	0.53
180 degrees from First Quadrant	0.52
180 degrees from Adjacent Quadrant	0.55
Average	**0.53**

[X] The average static coefficient of friction of the four quadrants of the test sample **[was]** **[~~was not~~]** at least 0.50 and the individual static coefficients of friction **[was]** **[~~was not~~]** at least 0.45.

Note to Lab:
If the minimum and maximum run values vary by greater than 0.06, please re-conduct the test. If the second set minimum and maximum values vary greater than 0.06, please contact the engineer.

Slip Resistance Test Conditions

AMBIENT TEMPERATURE	**22.5°C**	Relative Humidity	**49.1%**

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ATTAR TEST REPORT NUMBER: 14/8445

21 November 2014

Total Pages: 2

WET PENDULUM SLIP RESISTANCE

Job No: M14/8445

Prepared for:	Ecoglo International Ltd. 77 Kingsley Street CHRISTCHURCH 8023 NEW ZEALAND
Attention:	Mark Watson
Test Site:	ATTAR, Unit 1, 64 Bridge Road, Keysborough.
Test Date:	20 November 2014
Test Specimens, Size & Quantity:	Ecoglo N3-070 contrast strip stair nosing, 150x51 mm, 15 off supplied. Refer to Figure 1.
Sampling & Direction of Testing:	Sampling conducted by client. Testing conducted perpendicular to profiled pattern (direction of pedestrian movement on stair descent). Refer to Figure 1.
Test Personnel:	Marcus Braché
Preparation:	Stair nosing strips fixed to plywood board. Washed with water and methylated spirits, rinsed with water, then dried.
Fixed/Unfixed:	Fixed.
Air Temperature:	22°C
Test Equipment:	Munro Stanley Skid Resistance Tester (Pendulum) Serial Number 0320, Calibrated 16/10/2013.
Test Standard:	AS 4586: 2013 Slip resistance classification of new pedestrian surface materials – Appendix A.
Slider Rubber:	Slider 96 Batch No. #53 prepared on P400 & 3µm lapping film.
Classification Criteria:	Refer to Classification Criteria, attached as Appendix 1.

British Pendulum Number	**Specimen Number**					**SRV**
	1	**2**	**3**	**4**	**5**	
	81	86	81	83	80	82
Classification:	**P5**					

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

ATTAR

Marcus Braché
Senior Engineering Technician
Approved Signatory

ATTAR - Advanced Technology Testing and Research
A division of Engineering Materials Evaluation Pty Ltd ABN 14 006 554 785
Unit 1, 64 Bridge Road, Keysborough Victoria 3173 T (03) 9574 6144 F (03) 9574 6133 E admin@attar.com.au www.attar.com.au

ATTAR TEST REPORT NUMBER: 14/8445

21 November 2014 **Total Pages: 2**

Figure 1: Ecoglo N3-070 contrast strip.
Highlighted area and arrow indicates contact area and test direction.

ATTAR TEST REPORT NUMBER: 08/2689

27 October 2008

Total Pages: 2

OIL-WET RAMP SLIP RESISTANCE

Job No: M08/2689

Prepared for:	Ecoglo Ltd P.O. Box 8654 CHRISTCHURCH NEW ZEALAND	
Attention:	Mr. Mark Watson	
Test Site:	ATTAR, Unit 12, 134 Springvale Road, Springvale.	
Test Date:	23 October 2008	
Manufacturer:	Ecoglo Ltd	
Test Specimen, Size & Quantity Received:	Ecoglo N1070 slip resistant strip, 51x600 mm, 22 off supplied.	
Sampling & Direction of Testing:	Sampling conducted by client. Testing conducted as shown in Figure 1.	
Test Personnel:	Simon Langdon & Callum Oakey	
Preparation:	As received, fastened to 1200x600x12 mm particle board for testing.	
Joint Width:	N/A	
Air Temperature:	20ºC	
Test Standard:	AS/NZS 4586 - 2004 Slip resistance classification of new pedestrian surface materials – Appendix D.	
Surface Structure :	Structured.	
Classification Criteria: (TABLE D3 in AS/NZS 4586- 2004)	**Corrected Mean Overall Acceptance Angle**	**Slip Resistance Assessment Group**
	6° to 10°	R9
	Over 10° to 19°	R10
	Over 19° to 27°	R11
	Over 27° to 35°	R12
	Over 35°	R13
Displacement Space:	Not Measured	
Displacement Space Assessment Group:	N/A	
Mean Overall Acceptance Angle:	**33.6°**	
Slip Resistance Assessment Group:	**R12**	

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

ATTAR

Simon Langdon
Engineering Technician
Approved Signatory

Figure 1: General view of Ecoglo N1070 slip resistant strips fastened to particle board for testing. Arrow indicates direction of testing..

ATTAR TEST REPORT NUMBER: 07/1890.1

27 November 2007

Total Pages: 2

DRY SLIP RESISTANCE

Job No: M07/1890

Prepared for:	Ecoglo Ltd. 77 Kingsley Street CHRISTCHURCH 8002 NEW ZEALAND		
Attention:	Mr. Mark Watson		
Test Site:	ATTAR, Unit 27, 134 Springvale Road, Springvale.		
Test Date:	26 November 2007		
Test Specimens, Size and Quantity:	4 off Ecoglo N1070 50x250 mm black carbide strips mounted to 200x250 mm aluminium backing plate, 5 off supplied.		
Sampling and Direction of Test:	Sampling conducted by client. Testing conducted as per Section A4.3.3 and Figure A5 of AS/NZS 4586:2004 as shown in Figure 1.		
Test Personnel:	Simon Langdon		
Preparation:	As received.		
Fixed/Unfixed:	Unfixed.		
Air Temperature:	23ºC		
Test Equipment:	Tortus Floor Friction Tester; Tortus Model Mk 2 (with integral printer), Serial No: 233.		
Test Standard:	AS/NZS 4586 - 2004 Slip resistance classification of new pedestrian surface materials – Appendix B.		
Slider Rubber:	Slider 96 (Four S) Batch No. 18		
Classification Criteria:	Refer Appendix 1 – Classification Criteria, attached.		
Dynamic Coefficient of Friction	**Run 1**	**Run 2**	**Mean** Rounded to 0.05
	0.91	0.93	0.90
Classification:	**F**		

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

ATTAR

Marcus Braché
Senior Engineering Technician

Simon Langdon
Engineering Technician

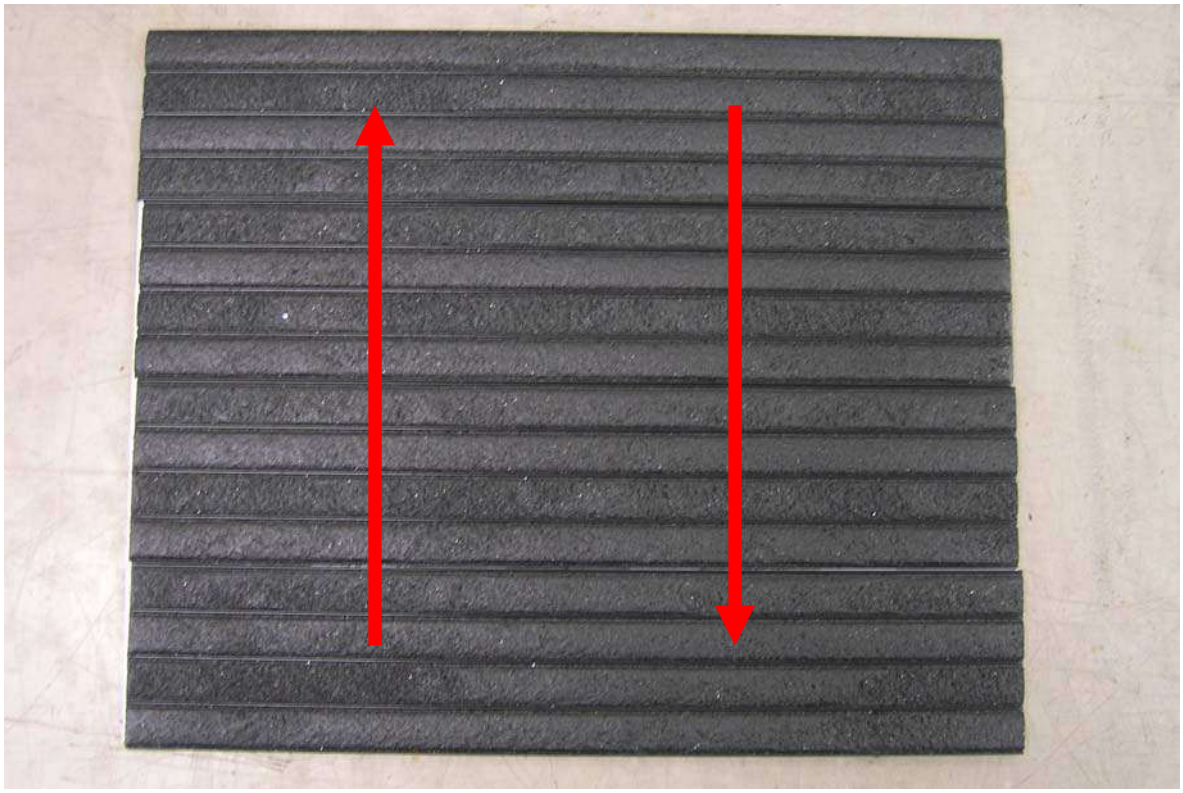

Figure 1: General view of Ecoglo N1070 product. Arrows indicate direction of dry testing.

ATTAR TEST REPORT NUMBER: 07/1890.2

27 November 2007

Total Pages: 2

WET SLIP RESISTANCE

Job No: M07/1890

Prepared for:	Ecoglo Ltd. 77 Kingsley Street CHRISTCHURCH 8002 NEW ZEALAND
Attention:	Mr. Mark Watson
Test Site:	ATTAR, Unit 27, 134 Springvale Road, Springvale.
Test Date:	26 November 2007
Test Specimens, Size & Quantity:	4 off Ecoglo N1070 50x250 mm black carbide strips mounted to 200x250 mm aluminium backing plate, 5 off supplied.
Sampling & Direction of Testing:	Sampling conducted by client. Testing conducted as per Section A4.3.3 and Figure A5 of AS/NZS 4586:2004 as shown in Figure 1.
Test Personnel:	Simon Langdon
Preparation:	As received.
Fixed/Unfixed:	Unfixed.
Air Temperature:	23ºC
Test Equipment:	Stanley Skid Resistance Tester (Pendulum) Serial Number 0320, Calibrated 11/04/2007.
Test Standard:	AS/NZS 4586 - 2004 Slip resistance classification of new pedestrian surface materials – Appendix A.
Slider Rubber:	Slider 96 (Four S) Batch No. 22
Classification Criteria:	Refer Appendix 1 – Classification Criteria, attached.

British Pendulum Number	**Specimen Number**					**Mean**
	1	2	3	4	5	
	80	76	78	81	74	78
Classification:	**V**					

These results apply only to the specimens tested and it is recommended that before selection of flooring or paving materials the effect of service conditions, including maintenance procedures and wear on their slip-resistance be checked.

NOTE: Any specimens supplied will be disposed of in two (2) months time, unless otherwise instructed.

ATTAR

Marcus Braché
Senior Engineering Technician

Simon Langdon
Engineering Technician

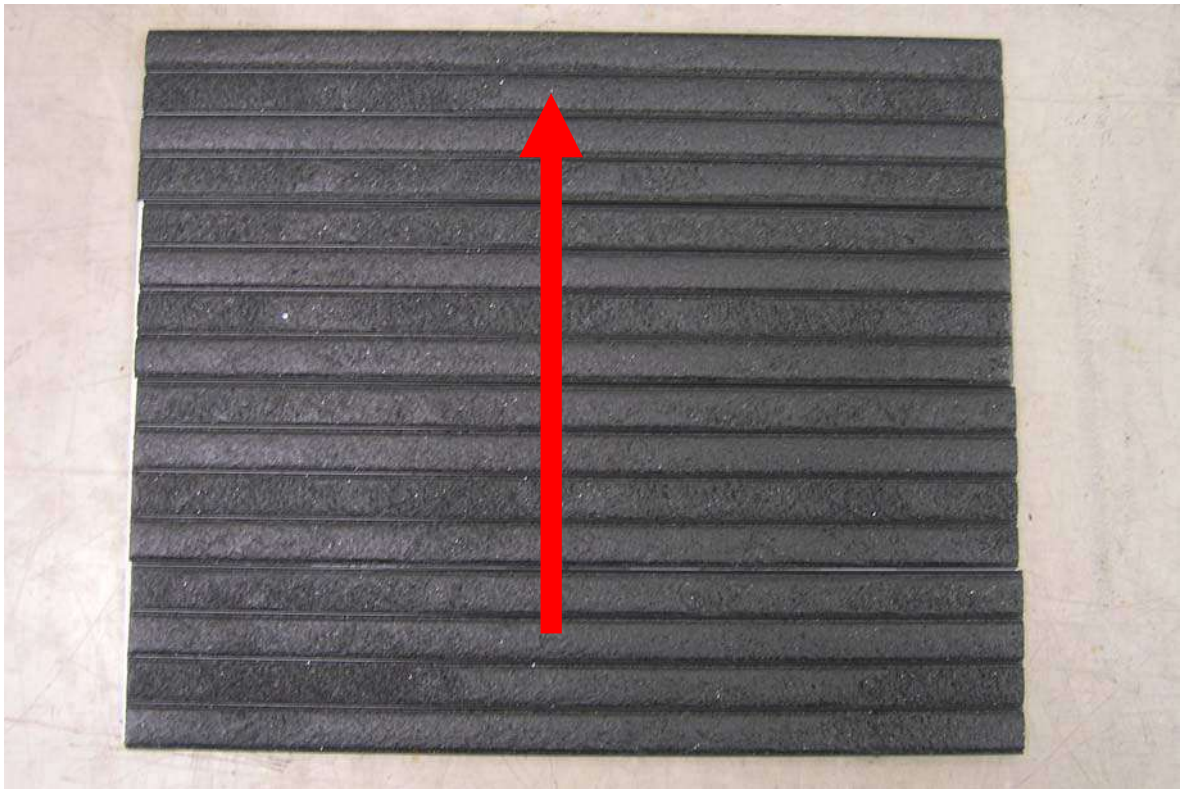

Figure 1: General view of Ecoglo N1070 product. Arrows indicate direction of wet testing.

SSL
Scientific Services Laboratory

Report No: XC2278/R1

TEST REPORT

File: BPB/MISC

SALT SPRAY TESTING OF STAIR NOSING

1. SAMPLE DETAILS

Client: Delwyn Ralston
LincLab Ltd
Private Bag 4749
Christchurch New Zealand

Sample Details: Five samples of aluminium stair nosings with anti-slip and photoluminescence inserts.

Requirements: To determine the salt spray resistance on the stair nosing.

2 TEST DETAILS-NATA REGISTRATION 219

2.1 Salt Spray

The samples were exposed in a Singleton Model 21 Salt Spray Cabinet for 500 hours.
A second sample of 120201 J was kept as a reference sample. The salt spray testing was carried out in accordance with ASTM B117-97 'Standard Test Method of Salt Spray (Fog) Testing'.

2.2 Evaluation

After exposure, the samples were evaluated in accordance with ASTM D1654-92 'Evaluation of Painted or Coated Specimens Subject to Corrosive Environment. The degree of corrosion was determined in accordance with ASTM D610. The anti-slip properties were assessed visually at 10 x magnification. The photoluminescence of the exposed samples was compared with that of the reference sample in a dark room.

3 RESULTS

Sample No	XC 2278/F	XC 2278/G	XC 2278/H	XC 2278/I	XC 2278/J
Details	Aluminium stair nosing Labelled 120201F	Aluminium stair nosing Labelled 120201G	Aluminium stair nosing Labelled 120201H	Aluminium stair nosing Labelled 120201I	Aluminium stair nosing Labelled 120201J
Degree of Corrosion	0.5 % (Rating 9)	0.3 % (Rating 9)	0.3 % (Rating 9)	0.2 % (Rating 9)	0.2 % (Rating 9)
Anti Slip Properties	No deterioration observed	No deterioration observed	No deterioration observed	No deterioration observed	No deterioration observed
Photo - luminescence	No deterioration observed	No deterioration observed	No deterioration observed	No deterioration observed	No deterioration observed

G. Eccleston

G Eccleston
Senior Materials Scientist
9 April 2001

National Association of Testing Authorities, Australia
NATA Endorsed Test Report
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177 Salmon St, Port Melbourne, Vic, 3207 Telephone (03) 9248 4900 Fax (03) 9646 5165
A Business Unit of the Australian Government Analytical Laboratories (AGAL)
Industry, Science and Resources

Professional Testing Laboratory, Inc.

TEST REPORT

DATE: 07/07/2005 **TEST NUMBER**: 096346

CLIENT	Ecoglo Ltd

TEST METHOD CONDUCTED	ASTM D4828 Washability of Organic Materials

DESCRIPTION OF TEST SAMPLE	
IDENTIFICATION	E2071
COLOR	Photoluminescent
ROLL	-----
CONSTRUCTION	-----
FIBER	-----
BACKING	-----
REFERENCE	

GENERAL PRINCIPLE

This test method covers the determination of the relative ease of removal of common soil and stains from interior coatings. The stains used in this procedure include: crayon, pen, lipstick, and 3M soil. The soilants are applied to the material and are subsequently removed manually using a sponge and liquid cleaner. The area stained is rated for color change and the number of cleaning cycles reported at the point of complete removal. Three replicates of each stain were applied with the results reported as the average of all three ratings.

TEST RESULTS

	Crayon	Felt Tip Pen	Lipstick	3M soil
Gloss Change	None	None	None	None
Color Change	None	None	None	None
Erosion	None	None	None	None
Cycles to Clean	74	7	31	14
Rating	10	10	10	10

NOTE: This sample **PASSES** the requirements as listed in the New York Department of Buildings RS6-1A section 6-1A 2.0

APPROVED BY: Gary Colburn

714 Glenwood Place Dalton, GA 30721 Phone: 706-[illegible]3283 Fax: 706-226-6787 email: protest@optilink.us

Professional Testing Laboratory, Inc.

TEST REPORT

DATE: 07/07/2005 **TEST NUMBER**: 096346

CLIENT	Ecoglo Ltd

TEST METHOD CONDUCTED	ASTM D635 Standard Test Method for Rate of Burning and or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position

	DESCRIPTION OF TEST SAMPLE
IDENTIFICATION	E2071
COLOR	Photoluminescent
ROLL	-----
CONSTRUCTION	-----
FIBER	-----
BACKING	-----
REFERENCE	

GENERAL PRINCIPLE

This method covers a small scale procedure for comparing the relative rate of burning and the extent and time of burning of self-supporting plastics that are tested in the horizontal position. A bar of the material is supported at one end. The free end is exposed to a gas flame for 30 seconds. The time and extent of burning are measured and reported. An average burn rate is reported over ten test specimens.

TEST RESULTS

	Burn Rate	Time of Burn	Extent of Burn
Specimen 1	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 2	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 3	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 4	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 5	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 6	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 7	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 8	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 9	No Burn Rate	0 Seconds	Did Not Ignite
Specimen 10	No Burn Rate	0 Seconds	Did Not Ignite
Average	No Burn Rate	0 Seconds	Did Not Ignite

APPROVED BY: Gary A. Autry

714 Glenwood Place Dalton, GA 30721 Phone: 706-226-3283 Fax: 706-226-6787 email: protest@optilink.us

CALIFORNIA INSTITUTE OF ELECTRONICS AND MATERIALS SCIENCE

2115 Flame Tree Way, Hemet, CA 92545 • Phone: 951 929 2659; Fax: 951 929 1057 • www.ciems.com

JALITE USA P. O. No. APR 15 of APRIL 15, 2005

DIVISION OF ELECTRONIC MEASUREMENTS AND DEVICES

TEST REPORT

NO. 850850821B of 20 MAY 2005

BRIGHTNESS, RADIOACTIVITY AND FLAME SPREAD TEST

Table 1. LUMINANCE TEST (Contact Method)

No.	*S a m p l e*	*Tested Area Geometry*		*E x c i t a t i o n*		*Luminance (Brightness), mcd/m²*		
		Diameter mm	*Area cm²*	*Duration min*	*Illuminance lx*	*after the time period of 10 min*	*60 min*	*90 min*
1	Ecoglo-G3001c	56.39	25.0	120.0	21.63	111	28.8	19.7

CONCLUSION: ***1. The tested samples of Ecoglo-G3001c meet the requirements of NYC Building Code Ref. STD RS 6-1, para. 1.4.***
2. The material tested has the Brightness Rating of 111-29-20.

Table 2. RADIOACTIVITY TEST

No.	*Material*	*Test Result, μSv/hr*			*Comments*
		α-count	*β-count*	*γ-count*	
1	Ecoglo-G3001c	<0.01	<0.01	<0.01	Non-radioactive

CONCLUSION: ***The tested samples of Ecoglo-G3001c meet the requirements of NYC Building Code Ref. STD RS 6-1, para. 4.2.***

(continued on page 2)

3. FLAME SPREAD TEST

No.	Material	Test Parameters: Temperature Drop ΔT, K	Test Parameters: Spec. Temperature Rise, β, K/kW	Flame Spread Factor, F_s 1	Flame Spread Index, I_s 1	Comments
1	Ecoglo-G3001c	21.5	31.4	1.51	7.59	Ignites with difficulties

CONCLUSION: ***The tested samples of Ecoglo-G3001c meet the requirements of NYC Building Code Ref STD RS 6-1, para. 5.2.***

TEST DESCRIPTION

1. The test per ISO 17398:2000, Clause 7.11 and NYC BC Ref. STD RS-1, para. 1.1 - 1.4 (brightness); ASTM D3648 and NYC BC Ref. STD RS-1, para. 4.1 - 4.2 (radioactivity); and ASTM E162 and NYC BC Ref. STD RS 6-1, para. 5.1 - 5.2 (flame spread). Test conditions: T=22°C, RH=47±2%, P=101.0±0.2 kPa.

2. The samples were preconditioned for the luminance test in the dark chamber and being wrapped in the black photografic paper for 63 hours, and were removed from the chamber immediately before the test. The test was performed in the windowless room lighted with the red photo-processing light. The excitation fluorescent light source has the maximum equivalent radiation intensity of $1.94 \cdot 10^7$ W/m^2 ($4.3 \cdot 10^3$ K) with λ_{max}=674 nm.

3. The radiation intensity readings were taken at nine different points on the surface of each of the samples tested with the samples located inside and outside of the radiation insulation chamber and under twelve angles between the normal to the sample surface and the direction of the field of gravity. The data in Table 2 were processed to exclude both the cosmic and the earth radiation background noise.

4. The experimental error evaluated by the partial derivatives and least squares methods does not exceed 5%, 4% and 6.5% for the luminance, radioactivity and flame spread measurements, respectively. The data on the standard deviation are kept on file at CIEMS.

5. INSTRUMENTS AND DEVICES USED
   - Digital Photometer Model 840006 SSL (0 to 20,000 lx), Digital Scotopic/Photopic Meter Model SL-3101 SLC
   - Radiometer/Photometer Model DR-2000 w/Si Detector GS
   - Goniometer Model 3501-08 FD
   - Moseley X-Y Recorder Model 7035B HP
   - 50A, 6V Stabilized Power Supply Model SC-506FAVD HBC
   - Precision Micrometer Model 25/100 Krupp/Hommelwerke
   - Radiation Pyrometer Mode1 ST-30 Raynger
   - Digital Timer Model Labchron-1402 LLI
   - Programmed Temperature/Humidity Controller Model 100
   - Geiger-Mueller Counter Model SGM-49C PRI

(continued on page 3)

- Scintillator Counter Model 111 PRI
- Digital Nuclear Radiation Monitor Model DX-1 ITS
- Flame Spread Testing Device Model 394-19DI BD
- Digital Pyrometer Model Metis-MP25 SensorTherm GmbH (100°C - 700°C, 2.0 µm - 2.8 µm)
- Optical Pyrometer Model MX-2 Raytek
- IR Thermometer Model IR550 DKS
- Precision Potentiometer/Thermometer Model 8659-AZ L&N
- Microscopes: Model 9700 TSC, Model 500 PH, Model Tukon-300 Wilson
- Starrett Dial Indicator Model 25-109 (1.27 µm/div)
- Digital Hydrothermometer Model 63-844 MI, Barometer Model 602650 SB.

6. Reference materials used for the test setup calibration:
   - NIST SRM 4233C (Cs-137-Ba-137m) - for the radiation measurements
   - NIST SRM 1002d (I_s=153, Q=36.5) - for the flame spread test.

7. The equipment used in the test meets the applicable NIST, ASTM, ASME, OSHA and State requirements and was calibrated with the standards traceable to the NIST. The calibration was performed per ANSI/ISO ASQ Q9004-2000, ISO 10012-1:1992, ISO 10012-2:1997, MIL-STD-45662, MIL-I-45208, NAVAIR-17-35-MTL-1, CSP-1/03-93 and the instruments manufacturers' specifications.

8. The equipment passed a periodic accuracy test in June 2004. The linear and volume measure instruments and equipment were calibrated in December 2004. Next test - June 2005.

TEST ENGINEER: ***51***

DIVISION MANAGER: *Cynthia Smythe*

Bodycote MATERIALS TESTING CANADA INC.

BODYCOTE • 2395 SPEAKMAN DRIVE, MISSISSAUGA, ONTARIO, CANADA L5K 1B3 • TEL: (905) 822-4111 • FAX: (905) 823-1446

Bombardier SMP 800-C Toxic Gas Generation on "Ecoglo E2071" HPPL Composite

A Report To:	**Professional Testing Laboratory, Inc.** 714 Glenwood Place Dalton, GA 30721 USA
Phone:	(706) 226-3283
Fax:	(706) 226-6787
Attention:	Lee Phillips
Submitted By:	Fire Testing
Report No.	05-02-519 3 pages + 1 appendix
Date:	July 12, 2005

ACCREDITATION Standards Council of Canada, Registration #1.

REGISTRATIONS
- ISO 9001:2000, registered by QMI, Registration #001109.
- New York City Department of Buildings, MEA Division, Registration #110-05-L.

SPECIFICATIONS OF ORDER

Determine toxic gas production according to Bombardier SMP 800-C, as per your P.O. #2005-062905 dated June 29, 2005.

IDENTIFICATION

(BMTC sample identification number 05-02-S0519)

Composite, abrasive strip and high performance photoluminescent (HPPL) material on aluminum tracking substrate, approximately 2.1 to 2.4 mm in total thickness, identified as "Ecoglo E2071".

SAMPLE PREPARATION

Specimens were supplied as a two-material composite strip with two separate, and compositionally different materials attached to an aluminum tracking substrate. Since this strip represents the final product, it was determined that this test procedure was appropriate. Requisite specimen sizes were created by butting two strips of the material together vertically in the specimen holders, in alternate stripes, in an attempt to offer maximum exposure to both materials.

Far Left. Composite marking system shown as supplied (cut to length).

Right: Test specimen (2 sections butted together vertically) shown in sample holder with abrasive strip and HPPL ridges alternating.

TEST RESULTS

Bombardier SMP 800-C

Toxic Gas Generation

		Flaming Mode	Non-Flaming Mode	Specified Maxima
Carbon Monoxide (CO ppm)	at 1.5 minutes	<10	<10	-
	at 4.0 minutes	10	<10	-
	at maximum	463	<10	3500
Carbon Dioxide (CO2 ppm)	at 1.5 minutes	<50	<50	-
	at 4.0 minutes	1850	<50	-
	at maximum	13400	<50	90000

TEST RESULTS (Cont..)

Bombardier SMP 800-C

Toxic Gas Generation

	Flaming Mode	Non-Flaming Mode	Specified Maxima
Nitrogen Oxides (as NO2 ppm)	2	1	100
Sulfur Dioxide (SO2 ppm)	<1	<1	100
Hydrogen Chloride (HCl ppm)	7	9	500
Hydrogen Fluoride (HF ppm)	<2	<2	100
Hydrogen Bromide (HBr ppm)	<1	<1	100
Hydrogen Cyanide (HCN ppm)	2	<1	100
Original Weight (g) (including substrate)	24.8	24.4	-
Final Weight (g) (including substrate)	20.9	24.2	-
Weight Loss (g)	3.9	0.2	-
Weight Loss (%)	15.86	0.78	-
Time to Ignition (s)	125	Did not ignite	-
Burning Duration (s)	Not determinable	-	-

CONCLUSIONS

The photoluminescent composite material on aluminum identified in this report, when tested at a total approximate thickness of 2.1 to 2.4 mm, meets Bombardier requirements as they pertain to toxic gas production (Bombardier SMP 800-C) and therefore meets the toxicity requirements of paragraph 3.0 of the New York City Building Code § 27-383(b) Reference Standard RS 6-1A (Photoluminescent exit path markings).

Note: This is an electronic copy of the report. Signatures are on file with the original report.

I. Smith,
Fire Testing.

Richard J. Lederle,
Fire Testing.

Note: This report consists of 3 pages, including the cover page, that comprise the report "body". It should be considered incomplete if all pages are not present. Additionally, the Appendix of this report comprises a cover page, plus 1 page.

Appendix 4

Ecoglo International Ltd

Safety Data Sheets

Ecoglo International Safety Data Sheet

June 2024

1. Identification

Product Name

Ecoglo Step Nosings and Path Markers including:
F2-003, F4-170, F4-171, F4-151, F6-170, F6-171, F9-180, F9-170, F9-150, F9-171, F9-185, F9-175, F9-155, F14-180, F14-170, F14-150, F14-173, F14-185, F14-175, F14-155, F14-1711, F14-2711, F15-180, F15-170, F15-150, F15-173, F15-185, F15-175, F15-155, F15-1711, F15-2711, G7-001, G7-100, T5-101, T6-101, T8-103

Manufacturer Details

Company: Ecoglo International Ltd
Address: 77 Kingsley St, Christchurch 8440, New Zealand
Phone No: +64 3 348 3781

2. Hazard Identification

Not classified as hazardous or dangerous as per GHS.

3. Composition/information on ingredients

Component	CAS No.	Proportion
Aluminium Alloy (6063)	-	70-98%
Strontium Aluminate based photoluminescent pigment	-	0-15%
Cross-linked thermoset polyester based resins	-	2-20%
Silicon Carbide and/or Aluminium Oxide grits	-	0-5%
Other components	-	< 3.4%

4. First-aid measures

No special measures required.

5. Fire-fighting measures

No special measures required.

6. Accidental release measures

Not applicable.

7. Handling and storage

Cut edges may be sharp. No special storage requirements.

8. Exposure controls and personal protection

Wear gloves when handling.

9. Physical and chemical properties

Appearance:	Solid Strip material
Odour:	N/A
Melting point:	N/A
Specific gravity:	2.2-2.7 g/cc
Volatile:	N/A
Vapour pressure:	N/A
Vapour density:	N/A
Solubility in water:	Insoluble
Flammability:	Not easily combustible. Passes Bombardier SMP 800-C Toxic gas generation test
Explosivity:	Not explosive

10. Stability and reactivity

Hazardous reactions:	None known
Radioactivity:	Not Radioactive

11. Toxicological information

No toxicological properties.

12. Ecological information

No ecological hazards.

13. Disposal considerations

Offcuts can be sent for aluminium recycling.

14. Transport information

Not restricted.

15. Regulatory information

None applicable to product.

16. Any other relevant information

None.

Ecoglo International Safety Data Sheet

Jul 2024

1. Identification

Product Name

Ecoglo Step Edge Contrast (N Series) including: N2-080, N2-070, N2-060, N2-050, N3-080, N3-070, N3-060, N3-050, N3-030, N10-011, N10-070, N15-080, N15-070, N15-050

Manufacturer Details

Company: Ecoglo International Ltd
Address: 77 Kingsley St, Christchurch 8440, New Zealand
Phone No: +64 3 348 3781 Email: info@ecoglo.com

2. Hazard Identification

Not classified as hazardous or dangerous as per GHS.

3. Composition/information on ingredients

Component	CAS No.	Proportion
Aluminium Alloy (6063)	-	50-80%
Cross-linked thermoset polyester based resins	-	10-30%
Silicon Carbide	-	5-20%
Other components	-	< 0.5%

4. First-aid measures

No special measures required.

5. Fire-fighting measures

No special measures required.

6. Accidental release measures

Not applicable.

7. Handling and storage

Cut edges may be sharp. No special storage requirements.

8. Exposure controls and personal protection

Wear gloves when handling.

9. Physical and chemical properties

Appearance:	Solid Strip material
Odour:	N/A
Melting point:	N/A
Specific gravity:	2.2-2.7 g/cc
Volatile:	N/A
Vapour pressure:	N/A
Vapour density:	N/A
Solubility in water:	Insoluble
Flammability:	Not easily combustible. Passes Bombardier SMP 800-C Toxic gas generation test
Explosivity:	Not explosive

10. Stability and reactivity

Hazardous reactions:	None known
Radioactivity:	Not Radioactive

11. Toxicological information

No toxicological properties.

12. Ecological information

No ecological hazards.

13. Disposal considerations

Offcuts can be sent for aluminium recycling.

14. Transport information

Not restricted.

15. Regulatory information

None applicable to product.

16. Any other relevant information

None.

Appendix 5

Ecoglo International Ltd

Quality Assurance Document

Ecoglo International Ltd

QUALITY POLICY

E.I.L is a world leader in the manufacture of photoluminescent signage and path marking. We pride ourselves on our strong focus on compliance and durability. Our policy is to achieve sustainable growth by offering quality products and service. All of our staff are committed to continual quality improvement. The company has earned respect and credibility, at an international level, as a result of our contributions to building code development around photoluminescent system design.

E.I.L maintains an ISO 9001:2015 compliant Business Management System. Management will ensure that all staff are committed to the principles of this system and its continual development.

Our key objectives are:

- To ensure that all products meet contractual and relevant regulatory obligations, both national and international.
- To offer a cost effective and sustainable alternative to traditional electrical lighting that all areas of industry can adopt in a safe and practical manner.
- To offer the most durable photoluminescent products on the market and back them with the best warranty and after-sales support.
- To identify and implement new processes to reduce our product cost without increasing our environmental impact.

Our strategy to achieve these goals is:

- Maintain a high level of staff input on quality control.
- Focus on keeping our staff fully aware of our expected quality output.
- Explore all opportunities to improve our products and processes.
- Effectively recognise the limitations of our product range and work with our clients and competitors to deliver the best result for our clients.
- Be active and engaged in the wider fire safety industry.
- Review any complaints or criticism and use them to construct educational material that assists all levels of industry, both national and international.

Ecoglo International Ltd.

77 Kingsley Street
Christchurch, New Zealand
www.ecoglo.com

Signed: 

Name: Sam Haughey

Date: 30/06/2023

Appendix 6

Ecoglo International Ltd

Warranty

Ecoglo International Limited Warranty for Photoluminescent Performance of HTC* Signs and Products

1. We warrant the photoluminescent performance of both Signs and Products, manufactured using our High Temperature Curing (HTC) process, for a period of:

thirty years from the date of installation for standard Signs and Products which are positioned **indoors;** and

fifteen years from the date of installation for **outdoor** Signs (specially coated for **outdoor** conditions) and Products which are positioned **outdoors**.

2. This warranty assumes normal conditions of use and maintenance but does not cover normal wear and tear. This warranty does not cover deterioration due to abuse, mistreatment, natural disasters (e.g. fire, flood), exposure to harmful chemicals or environments or any other use or exposure not recommended in our product literature. In particular, this warranty is void in the following circumstances:

2.1 The Signs and/or Products have been misused, neglected, damaged, abused or involved in an accident.

2.2 The Signs and/or Products have been improperly operated, repaired or maintained.

2.3 The Signs and/or Products have been modified.

2.4 The Signs and/or Products have been used outside their stated specifications, capacity and operating parameters.

3. If you have a claim that, in our reasonable judgement, satisfies the terms of this warranty, we shall replace the defective Sign or Product (material only).

4. This is an express warranty. It is your sole and exclusive remedy. We disclaim any other express or implied warranties, including warranties of merchantability or fitness for purpose, to the maximum extent permitted by law. Under no circumstances shall we accept liability for any injury to persons, damage to property, loss of profits, loss of operations or other direct, indirect, special, incidental, or consequential losses, costs and damages whether incurred by you, your guests, licensees, invitees or other third parties. Our liability under any circumstance, whether in contract, tort or otherwise, shall not, in the aggregate, exceed the price that you paid for the Sign and/or Product.

5. Some countries do not allow certain disclaimers, limitations or exclusions in warranties. Therefore, the above disclaimers, limitations and exclusions may not apply to you. This warranty gives you specific legal rights. You may have other rights or remedies pursuant to the laws of your country. Nothing in this limited warranty should be construed as limiting or restricting any other right or remedy available to you, except as allowed by the law in your country.

*Manufactured using High Temperature Curing (HTC)

V24.1

Appendix 7

Ecoglo International Ltd

Maintenance and Cleaning Instructions

ecoglo®

VISIBLY BETTER

Instructions For

Maintenance and Cleaning

Exit Signs and Step Edge Products

Ecoglo International Limited
Email: info@ecoglo.com
www.ecoglo.com

ecoglo®

Maintenance and Cleaning Instructions For Exit Signs and Step Edge Products

Overview

- Regular maintenance and cleaning to remove any obstructions or built up dirt and deposits will ensure the Ecoglo products continue performing to expectation.
- The photoluminescence will continue performing even after UV exposure or exposure to moisture.

Floor Mounted Products

- Check nothing is covering up the product.
- Visually inspect for any sign of damage.
- Vacuuming or brushing with a stiff bristle head brush (dry or wet) is often enough to keep the strips clean.
- The strip can also be wiped clean with a (dry or wet) sponge or cloth.
- High-pressure water (but not steam cleaning) can also be used.
- Observation will determine if cleaning is required however a regular clean every 4 to 6 weeks or after particularly heavy use should ensure correct performance.

Wall Mounted Products

- Check nothing is covering up the sign.
- Visually inspect for any sign of damage.
- Dusting with a soft cloth or brush is often enough to keep the signs clean.
- The face of the sign can also be wiped clean with a (dry or wet) sponge or cloth.
- Observation will determine if cleaning is required.

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Ecoglo Fire Protection Product Trading
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Binangonan Rizal 1940, Philippines
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Email: InfoPHL@ecoglo.com
Web: www.ecoglo.ph / www.EcogloAsia.com /
www.EcogloVenues.com

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