



Product Data Sheet

SafeSign™

Reflective ECE-104 Class E

Retro-reflective Safety Signage

Product Description

SafeSign™ Reflective film is a high performance sandwich, manufactured according to 3M™ production specifications, for the use of safety signage and (proces)safety markings.

With a 3M™ Scotchlite™ cast vinyl material printed with UV-curing resin ink on a 3M™ Configured Printer and a 3M™ Protective Gloss Overlamine, this Reflective Safety Signage (film) product can be used in demanding environments, and with a long expected lifetime. The pressure sensitive acrylic glue backing ensures a strong adhesion on vertical, flat, curved or corrugated surfaces, with or without rivets.

SafeSign™ Reflective film can be applied to (coated) steel, aluminium, plastic, glass and (silicon free) painted surfaces.

Featured standard SafeSign™ product compositions are:

SafeSign™ Reflective Self Adhesive signs (film/labels)

SafeSign™ Reflective PET (Poly Ethylene Terephthalate) opaque signs - 4mm

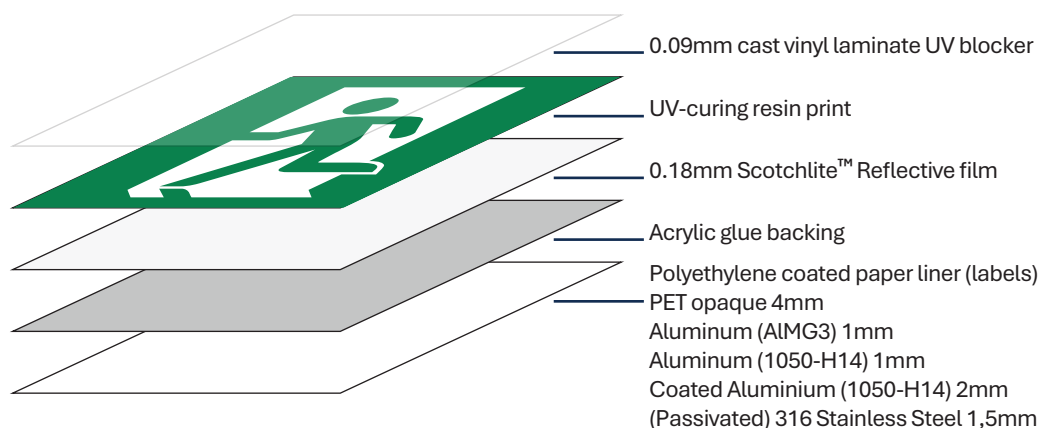
SafeSign™ Reflective Aluminum (AlMG3) signs

SafeSign™ Reflective Coated Aluminium signs (with double folded edges)

SafeSign™ Reflective (Passivated) 316 Stainless Steel

- Reflective Signage film for industrial and offshore application, in- and outdoor;
- Colorvast and resistance to base chemicals and petroleum vapours;
- Tested for use in ATEX environments (IEC 60079-0:2017).

Product composition figure





Product

Note : These are indicative values for processed products.

Characteristics

Physical & Application

Material:

0.18mm cast vinyl printed with UV-curing resin ink on a 3M™ configured printer, laminated with a 0.09 mm cast vinyl with UV blocker.

- Surface finish : Glossy
- Thickness (film) : 27 µm (0.27 mm)
- Adhesive type : 25 micron solvent based acrylic, pressure sensitive
- Adhesive appearance : Transparent
- Liner : Double-sided Polyethylene coated paper
- Adhesion : 22 N/25 mm - FTM 1: 180° peel, substrate: alum; cond: 24 h 23°C/50%RH
- Application method : Dry only!
- Application temperature : +7°C to +38°C (for flat and curved to corrugated surfaces)
(minimum air and substrate) 3M recommends application at +18°C to +22°C for optimum ease of application
- Service temperature : -34°C to +93°C (not for extended periods of time at the extremes)
(after application)
- Surface type : Flat to curved, including rivets and corrugations, deep channels and recesses
- Substrate type : Steel, stainless steel, aluminum, PMMA, ABS, glass and (silicon free) painted piping
- Print - Ink : 3M™ (co-branded) UV-curing resin ink
- Flammability : Ask your local SafeSign contact
- Chemical Resistance : Tested according to ISO 2812-1
Resistant to most mild acids, alkalis, and salt solutions including water
Resists Petroleum Vapors

- Explosion Safety : Tested according to IEC 60079-0:2017
Surface resistance test (IEC 670079-0, clause 26.13) of non metallic plates/ stickers
Surface Resistance at 50% Humidity : 69.1 / 75.3 G ohms
Surface Resistance at 30% Humidity : 46.9 / 49.1 G ohms
(The surface resistance limit is 100 G ohms)

The surface of the material complies with the requirements of IEC 60079-0:2017 clauses 7.4.2a) and 7.4.3a). The risk of electrostatic charging is avoided in accordance with these clauses.

Reflective value/class

Class E according to UN/ECE104 for unprinted film (white) measured at a 5° entrance angle and 0.33° observation angle and expressed in candelas per lux per square meter [cd/(lx·m²)]. Typical value of retroreflection is 40.

Storage & Shipment

- Shelf life : This product has a shelf life of 1 year if stored between 10°C and 25°C and 35 to 65% RH
- HS Code : 3919 9000 (Adhesive film / labels)

Maintenance and Cleaning

Use a cleaner designed for high-quality painted surfaces. The cleaner must be wet, non-abrasive, without strong solvents, and have a pH value between 3 and 11 (neither strongly acidic nor strongly alkaline).



Durability

The durabilities mentioned in the table below are the results of illustrative lab tests. The values show the best performance expected from these products, provided that the film will be processed and applied professionally according to 3M's recommendations. The durability statements do not constitute warranties of quality, life and characteristics.

The durability of products is also influenced by:

- the type of substrate and thorough preparation of the surface
- application procedures
- environmental factors
- the method and the frequency of cleaning

Climatic zones

Graphic durability is largely determined by the climate and the angle of exposure. Find below a table showing the durability of a product according to the angle of exposure and the geographical location of the application.

Zone 1 - Northern Europe, Italy (north of Rome), Russia

Zone 2 - Mediterranean area without North Africa, South Africa

Zone 3 - Gulf area, Africa

	Zone 1	Zone 2	Zone 3
Vertical outdoor exposure :	8 years	7 years	5 years
Indoor (interior) application :	8 years	8 years	8 years

(interior) means an application inside a building without direct exposure to sunlight.

Warranty

The warranty granted by SafeSign™ / 3M™ is 5 years, when applied by 3M™ Certified Safety Sign Installers™, and according to 3M™ application recommendations. The warranty includes the adhesion, delamination and extreme color fading. Abrasion and loss of gloss are not covered by any warranty. This is considered normal wear and tear.

Limitations of End Uses

SafeSign™ / 3M™ specifically does not recommend or warrant the following uses;

- low surface energy substrates or substrates with low surface energy coating
- stainless steel, (un) painted rough wallboard, gypsum board and wallpaper
- surfaces with poor paint to substrate adhesion
- surfaces that are not clean
- joints / welds deeper or higher than 3.1 mm
- flexible substrates, such as flexible isolation blankets
- isolation materials without finishing, with rough surface

Remarks

Important notice

This Product Data Sheet provides technical information only.

All questions of warranty and liability relating to this product are governed by the terms and conditions of the sale, subject, where applicable, to the prevailing law. Before using, the user must determine the suitability of the product for its required or intended use, and the user assumes all risk and liability whatsoever in connection therewith.

As outdoor graphics age, natural weathering occurs causing a gradual reduction in gloss, slight color changes, some lifting of the graphic at the edges or around rivets, and ultimately a minor amount of cracking. These changes are not evidence of product failure and are not covered by a warranty.