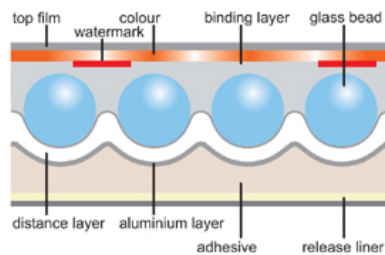


# Nikkalite® 8100 series Engineering grade

## Introduction

**Nikkalite® 8100 series Engineering Grade** retroreflective sheeting is an enclosed lens sheeting material manufactured by Nippon Carbide Industries (NCI), which renders high retroreflectivity at night. Traffic signs faced with **Nikkalite®** sheeting and screen printed with transparent process colours are attractive in appearance and highly visible during both day and night, and contribute greatly to driving safety.



**Nikkalite® 8100 series** sheeting fulfils the requirements of Class RA 1 according to BS EN 12899-1; 2007, with an average life expectancy in excess of 7 years. The sheeting is coated with a permanent tack adhesive protected by a silicone coated paper release liner.



## BS EN 12899-1; 2007 Fixed, vertical road traffic signs

### 4.1 Retroreflective glass bead sign face material

#### 4.1.1.3 Daylight chromaticity and luminance factor

**Nikkalite® 8100 series** sheeting complies with retroreflective sign face material to Table 1 Class CR1.

#### 4.1.1.4 Coefficient of retroreflection $R_A$

**Nikkalite® 8100 series** sheeting complies with the requirements of Table 3 Class RA 1 shown below.

| Geometry of measurements |                                | Colour |        |      |       |      |       |        |
|--------------------------|--------------------------------|--------|--------|------|-------|------|-------|--------|
| $\alpha$                 | $\beta_1$<br>( $\beta_2 = 0$ ) | White  | Yellow | Red  | Green | Blue | Brown | Orange |
| 12'                      | +5°                            | 70     | 50     | 14,5 | 9     | 4    | 1     | 25     |
|                          | +30°                           | 30     | 22     | 6    | 3,5   | 1,7  | 0,3   | 10     |
|                          | +40°                           | 10     | 7      | 2    | 1,5   | 0,5  | #     | 2,2    |
| 20'                      | +5°                            | 50     | 35     | 10   | 7     | 2    | 0,6   | 20     |
|                          | +30°                           | 24     | 16     | 4    | 3     | 1    | 0,2   | 8      |
|                          | +40°                           | 9      | 6      | 1,8  | 1,2   | #    | #     | 2,2    |
| 2°                       | +5°                            | 5      | 3      | 1    | 0,5   | #    | #     | 1,2    |
|                          | +30°                           | 2,5    | 1,5    | 0,5  | 0,3   | #    | #     | 0,5    |
|                          | +40°                           | 1,5    | 1,0    | 0,5  | 0,2   | #    | #     | #      |

# Indicates "Value greater than zero but not significant or applicable".

### 4.1.1.5 Durability

#### 4.1.1.5.1 Resistance to weathering

#### 4.1.1.5.2 Accelerated natural weathering

When **Nikkalite® 8100 series** sheeting is tested in accordance with 4.1.1.5.2, the sheeting complies with the requirements of 4.1.1.3 Table 1 and the coefficient of retroreflection shall be not less than 80% of the values stated in 4.1.1.4 Table 3 Class RA 1 sheeting.

#### **4.1.2 Impact resistance**

**Nikkalite**<sup>®</sup> 8100 series sheeting complies with the requirements of this clause when tested on 3mm aluminium sheet.

#### **9.2 Marking and labelling**

**Nikkalite**<sup>®</sup> 8100 series sheeting contains durable and visible surface identification as required by this clause; NCI logo, production identification code and RA 1 retroreflective performance marking.

#### **Roll storage**

Please refer to separate detailed technical information

[Roll Storage, Substrate Preparation & Application of sign face sheetings.](#)

#### **Application of 8100 series sheeting**

**Nikkalite**<sup>®</sup> sheetings will bond to clean smooth surfaces of tested and approved metal, coated metal, and certain plastic sheets. Please refer to separate detailed technical information

[Roll Storage, Substrate Preparation & Application of sign face sheetings.](#)

#### **Coloured overlay films**

**Nikkalite**<sup>®</sup> PA100 self-coloured transparent overlay films have a clear acrylic pressure sensitive adhesive and are designed to offer a simplified and efficient system of sign manufacture for various types of Road Traffic Signs manufactured to BS EN 12899-1. Please refer to separate detailed technical information [PA100 Coloured overlay films](#)

#### **Engineering grade Health & Safety (COSHH)**

Although the adhesive contains a small amount of solvent, it is almost certain that this solvent will not be emitted from the sheeting. For further information please contact Rennicks UK for a COSHH data sheet.

#### **Screen printing**

Both the **Nikkalite**<sup>®</sup> N3500 and N3600 types of inks are durable, highly transparent, quick drying screen printing inks, that bond strongly and permanently to **Nikkalite**<sup>®</sup> retroreflective sheeting.

Please refer to separate detailed technical information

[Screen printing & preparation for Nikkalite inks](#)

#### **Colour matching**

When using more than one piece of reflective sheeting together, sheeting from the same roll should be used for uniform colour matching and reflectivity. Every other piece of material should be rotated by 180°, so the same roll edges come together. When required the sheeting may be overlapped by 6mm from top to bottom.

Colour matching is the responsibility of the sign manufacturer.

#### **Graphic cutting**

The material must be allowed to condition, out of its box and correctly supported, ideally in a room with an ambient temperature of 15°C to 25°C (59°F to 77°F) before cutting.

Certain upright friction and flat bed plotters are suitable for cutting **Nikkalite**<sup>®</sup> 8100 series Engineering Grade materials. Off cuts of sheeting should be stored flat or tightly wound around the outside of a core with a diameter of 76mm or greater.

### Packaging & Storage of finished signs prior to installation

Finished signs should be adequately packaged to prevent damage during handling and transit. The sheeting liner may be used against the sign face in addition to bubble wrap and the signs should be placed face to face.

The effective performance life and guarantees may be become void by mishandling, or incorrect storage and installation techniques.

[Please refer to our separate handling and storage instruction sheet.](#)

### Sign cleaning

Please refer to our separate information [Sign cleaning](#)

### Durability

When processed and applied in line with the manufacturer's instructions, **Nikkalite**<sup>®</sup> 8100 series Engineering Grade material when exposed vertically under normal weathering conditions can be expected to have a useful performance life as shown in the table below. However, actual performance depends greatly on type and treatment of substrate and on weathering conditions.

| Type        | Effective life UK & Ireland |
|-------------|-----------------------------|
| 8112 White  | 7 years                     |
| 8104 Yellow | 7 years                     |
| 8105 Red    | 7 years                     |
| 8106 Blue   | 7 years                     |
| 8107 Orange | 3 years                     |
| 8108 Green  | 7 years                     |
| 8109 Brown  | 7 years                     |

### Reliability of information

All recommendations and technical information contained herein are based on experience and tests, which the manufacturer believes to be reliable, but their accuracy and completion are not warranted.

The user is cautioned to undertake tests to determine the suitability of a particular product for the intended application.

### Warranty

**Nikkalite**<sup>®</sup> products are warranted to be free from defects in materials and workmanship at the time of their sale. Subject to paragraph two hereof, Nikkalite<sup>™</sup> products are sold without any warranty whatsoever, including warranties of merchantability or fitness for a particular purpose. The sole remedy for failure of **Nikkalite**<sup>®</sup> products to conform to said warranty is the replacement of the defective products; neither the manufacturer nor the seller shall be liable for any loss, damage or injury, direct or indirect, consequential or incidental, arising from the use of or inability to use said products.

**Nikkalite**<sup>®</sup> products sold in the United Kingdom are sold with a warranty subject to the [Road Traffic Sign Warranty](#) agreement between Rennicks (UK) Limited, Nippon Carbide Industries Inc., and the Traffic Sign Manufacturer.