

## Nikkalite® F4300 Series Promotional Grade Retroreflective sheeting

### Introduction

F4300 Promotional series reflective sheeting is an enclosed lens sheeting with a performance life of up to 5 years making it suitable for vehicle markings, commercial & industrial signage, Hazchem type labeling and graphics. F4300 is manufactured with a high tensile strength top layer and an aggressive pressure sensitive adhesive suitable for application in minimum temperatures of 15C, to which both sheeting and substrate has been conditioned.

### Availability

Available in the following colours;  
White F4312, Yellow F4304, Red F4305, Blue F4306, Orange F4367 and Light Green F4308.

### Roll storage

Please refer to separate detailed technical information [Roll Storage, Substrate Preparation & Application of sign face sheetings.](#)



### Application of sheeting

Nikkalite® sheetings will bond to clean smooth surfaces of tested and approved metal, coated metal, and certain plastic sheets. Please refer to more detailed separate technical information sheet; [Roll Storage, Substrate Preparation & Application of sign face sheetings](#)

### Screen-printing

Promotional grade F4300 material has excellent lay flat characteristics during printing and should be printed using Nikkalite® N3900 series inks, which bond well and offer a tough durable image. If using other commercially available inks the user must accept full responsibility for undertaking adhesion tests to ensure compatibility etc. 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

Promotional grade F4300 has a high tensile strength top layer, please undertake test cuts to assess suitability of your equipment. The tough and durable topcoat makes the material very strong and suitable for application to two-dimensional surfaces. When applying to vehicles the material should be suitably cut for application to panels off differing angles.

## **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 become void by mishandling, or incorrect storage and installation techniques.

Please refer to our separate handling and storage instruction sheet.

## **Durability**

When processed and applied in line with the manufacturer's instructions, Nikkalite® F4300 Promotional grade material when exposed vertically under normal weathering conditions can be expected to have a useful life of up to 5 years. However, actual performance depends greatly on type and treatment of substrate and weathering conditions. The effective performance life of the retroreflective sheeting & inks will be reduced by chemicals, strong or abrasive cleaners, polish cutting agents, heavy automated brushing, steam cleaning or hot-jet washing.

## **Surface preparation of vehicles**

F4300 is coated with a durable pressure sensitive adhesive, which will bond strongly to clean smooth surfaces of tested and approved metals. Conduct test before application to other surfaces.

Vehicle surfaces must be thoroughly cleaned. Oxidised substances created by atmospheric moisture and gases, dirt, oil or protective waxes are usually present on the surface of the panels and these must be removed prior to graphics application.

If applying to non-metallic surfaces or small diameter curved surfaces please contact Rennicks (UK) Ltd., for further technical information.

It is the user's responsibility to pre-test the suitability of the surface before F4300 is applied. Adhesion tests are recommended on new and untried substrates and/or painted surfaces before use. Samples of new substrates may be submitted to Rennicks (UK) Ltd., accompanied by technical information to be evaluated at Nippon Carbide Industries (NCI).

## **Cleaning vehicle surface with solvent**

1. Soak a clean cloth with Ethyl Acetate, MEK or Methylated spirits and thoroughly wipe the surface
2. Soak a second cloth with the same solvent and wipe the surface once again
3. Wipe the surface dry with a lint-free cloth or paper towel
4. Discard all contaminated cloths and towels. Dirty cloths can spread contamination over an entire surface.
5. Check that there are no dirt or grease residues or solvent remaining on the surface

**Note:** When cleaning plastic surfaces apply a small amount of solvent and wipe the whole surface quickly. If solvent remains on the surface wipe it off with a clean dry lint-free cloth or paper towel. Some plastics may develop surface hairline cracks after wiping with solvent. Perform a test by pouring solvent on to a small area before treatment. Those plastics which develop hairline cracks should be wiped with a cloth soaked with a mild detergent solution and then washed thoroughly with water and dried with a lint-free cloth or paper towel.

## **Vehicle cleaning – Important please read carefully**

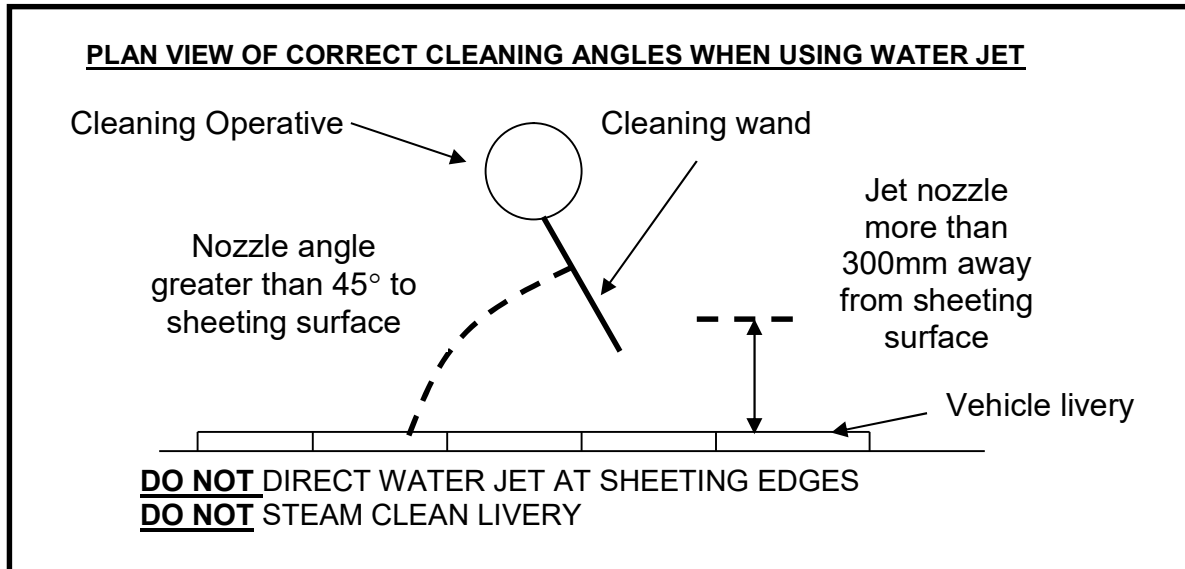
Liveries should be cleaned using warm or cold water incorporating mild detergent and rinsed using clean water.

- Abrasive cleaners, strong aromatic or alcohol based cleaners must not be used.
- Soft brushes or sponges should be used to prevent scratching.
- Tar or oil deposits can be removed from the sheeting surface using Turpentine. Wipe the stain lightly and immediately rinse the area with plenty of clean water & allow to dry naturally.

When a high-pressure washer or hose is employed it is important that the following conditions are strictly observed:

- maximum water temperature 55°C
- maximum pressure 1250 psi
- minimum distance between cleaning nozzle and sheeting surface 300mm.
- the cleaning wand nozzle must be held at an angle greater than 45° to the surface of the sheeting
- The water jet must not be directed at sheeting edges

See sketch below



The effective performance life of the retroreflective sheeting & inks will be reduced by chemicals, strong or abrasive cleaners, polish cutting agents, heavy automated brushing, steam cleaning or hot-jet washing.

### Removal of liveries / Graphics from vehicle

Nikkalite F4300 sheeting can be removed by applying gentle heat to its surface and peeling away.

### Technical information

Typical coefficient of Retroreflection;

(cd/lux/m<sup>2</sup>)

Entrance angle	Observation angle	White F4312	Yellow F4304	Red F4305	Blue F4306	Orange F4367	Light Green F4308
-5°	12'	40	34	18	4	30	18
	20'	34	29	16	3.4	26	15
	1.0°	9	7	4.5	1	6.5	4.5
15°	12'	37	30	14	3.6	27	16
	20'	32	26	12	3.2	24	14
	1.0°	8	6	4	0.8	6	4
40°	12'	20	16	7	1.8	13	7
	20'	18	14	6	1.6	11	6
	1.0°	6	5.5	3	0.6	5	2.5

### Physical properties

Property	Test Method	Results
Average Thickness without liner	Micrometer	0.117mm
Adhesion strength	180° pullback at 30cm/min at 23°C	2kgf/25mm=19N/in
Adhesive type		Acrylic resin
Tensile Strength	Instron at 30cm (12")/min	19.4kg/25mm=190N/in
Elongation	Instron at 30cm (12")/min	100%
Top layer		PET film (Polymethylmetacrylic)

The data below is based on tests conducted on F4300 sheeting applied to acid-etched aluminium panels and conditioned for 48 hours at a room temperature of 22°C.

Property	Test Method	Results
Humidity Resistance	100% humidity at 25°C for 72 hours	No defects
Cold Resistance	72 hours at -55°C	No defects
Heat Resistance	24 hours at 70°C	No defects
Hot / cold cycle 20 cycles	Each cycle 2 hours at -55°C then 2 hours in water ambient temperature	No defects
Salt spray Effects	3% concentration at 35°C for 500 hours	No defects

### Resistance to Chemicals

Chemical Agent	Exposure Time	Results
Water	1 month at 22°C	No effect
10% Hydrochloric Acid Solution	10 mins at 22°C	No effect
Artificial sea water	1 month at 22°C	No effect
Xylene	1 min. at 22°C	No effect
Toluene	1 min. at 22°C	No effect
Turpentine	10 mins. at 22°C	No effect
Gasoline	30 mins. at 22°C	No effect

### 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 their own test/tests to determine the suitability of a particular product for the intended application.

### Warranty

Nikkalite® products are warranted to be free from defects in materials and workmanship at the time of their sale. Subject to paragraph two hereof, Nikkalite® products are sold without any warranty whatsoever, including warranties of merchantability or fitness for a particular purpose. The sole remedy for failure of Nikkalite® 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.