Flexible Engineering Grade Reflective Sheeting
Technical Bulletin

INTRODUCTION

Nikkalite™ Brand 48000 Flexible Engineer Grade reflective sheeting (48000 Series) is a flexible, enclosed lens reflective sheeting with a permanent adhesive and excellent printability. Typical application for this material is for decals, vehicle markings, commercial signs, and can be applied over uneven surfaces. 48000 Series sheeting is easy to handle and has a pressure sensitive adhesive with a removable liner.

AVAILABLE STANDARD WIDTH, LENGTH AND COLOR

Widths: 24", 30", 36", and 48"
Length: 50 Yards
Colors: See Table 1 below

PHOTOMETORIC PERFORMANCE

Typical coefficient of retroreflective 48000 Series sheeting, when measured with the methods specified in ASTM D4596, expressed in candlepower per lux per square meter (Table 1).

Table 1 (cd/lux/m^2)

Product Number	Color	Observation Angle/ Entrance Angle
		0.2°/-4°
48012	White	70
48003	Black	1
48004	Yellow	50
48034	Lemon Yellow	50
48005	Red	14
48025	Dark Red	5
48035	Light Red	5
48006	Blue	4
48046	Sky Blue	4
48077	Orange	25
48008	Green	9
48009	Brown	1
48010	Gold	50

TECHNICAL DATA

Properties	Test Method	Results and others
Average Thickness (without liner)	Micrometer	6.2 mil. / 158μm
Average Gloss	Gloss-meter	87 at 60°
Tensile Strength	Instron Tester	26.4 N / 25mm width
Elongation	Instron Tester	169%
Min/Max Application Temperature	Flat, smooth and uneven surfaces	59°F (15°C) - 77°F (25°C)

48000 Series sheeting applied onto an aluminum plate with a 2kg hand roller. (Results may vary depending on substrates used).

DURABILITY
48000 Series when applied per the manufacturer's instructions, has an expected performance life of 7 years when exposed vertically. The reflective sheeting shall be considered as performing satisfactorily if the sheeting has not deteriorated due to natural causes. All inks and laminates must be tested by the end user to ensure compatibility. Ink profiles are available on our website.

SUBSTATE TREATMENT
48000 Series sheeting may be applied on to flat or uneven surfaces. Surface should be cleaned prior to application. A neutral detergent solution or mild solvents should be used to remove oil, stains, and other similar types of petroleum-based contaminants.

APPLICATION PROCESS
For best results, sheeting should be applied inside a temperature-controlled facility. A minimum 24-hour curing period is needed to maximize adhesive strength. End-user should conduct your own adhesive tests on the desired surface as enamels vary from vehicle to vehicle. A squeegee or laminator is needed for consistent pressure. A heat gun can be used to give the sheeting greater flexibility. 48000 Series sheeting should not be stretched, as it may result in color change, physical damage, and performance degradation.

CLEANING
Care must be taken during the cleaning process. A solution of a mild detergent in clean warm water is recommended for cleaning the sheeting surface. The detergent and cloth must be non-abrasive and free of strong aromatic solvents or alcohol. Rinse the area thoroughly after washing with a low-pressure flow of water and allow to dry naturally or use a lint free cloth. Caution must be used with automatic car washes as strong solvents and hard brushes may be used.

STORAGE AND SHELF LIFE
All recommendations and technical information contained herein are based on experience and tests, which the manufacturer believes to be reliable. The user is cautioned to undertake their own evaluation to determine the suitability of a particular product for the intended application.

RELIABILITY
All recommendations and technical information contained herein are based on experience and tests, which the manufacturer believes to be reliable. The user is cautioned to undertake their own evaluation 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. Performance durability is warranted for sheeting exposure less than 45°. Exposure angles exceeding 45° will reduce the durability proportionally.

CAUTION
Read through First Aid, Health Hazzard and Precautionary statements mentioned in the Materials Safety Data Sheets (MSDS).