

# DURABILITY GUIDE

## Outdoor durability of digital vinyl products based on regional climate.

### SELF ADHESIVE VINYL DURABILITY GUIDE

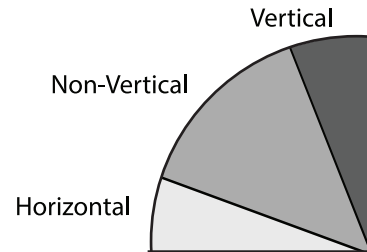
The regional climate of a country is the main factor which will reduce the expected performance, along with the angle and exposure of the application. Other points to consider are preparation of the substrate, method of application, cleaning and maintenance process. The user must ensure that graphics and markings produced are suitable for their intended use and installed in accordance with the published methods and best practices as found in material manufactures technical bulletins, these can be found at [creativegraphicsupplies.com.au](http://creativegraphicsupplies.com.au)

External durability guide is based on vertical exposure under Australian conditions and refers to the unprinted vinyl, The product will remain in satisfactory condition, effective for its intended purpose, and not deteriorate excessively, eg: from shrinkage or discoloration, within the listed durability term.

### EXPOSURE ANGELS

Graphics will be affected and external durability altered depending on the angle and exposure. The different angles of exposure are detailed as follows:.

- Vertical Exposure: ± 10° from vertical
- Non-Vertical Exposure: 11° to 69° from vertical
- Horizontal Exposure: 70° - 90° from vertical



### Zone Durability

The below figures show the external performance in years expected in the different listed zones. These are determined by regional climate and angle of exposure.

Vertical Exposure		Vertical Exposure		Non-Vertical, Horizontal Exposure		
Zone 1		Zone 2	Zone 3	Zone 1	Zone 2	Zone 3
8		6	4	4	3	2
7		5	3.5	3.5	2.5	1.5
6		4	2	3	2	1
5		3	1.5	2.5	1.5	0.5
4		2	1	2	1	-
3		1.5	0.5	1.5	0.5	-
2		1	-	1	-	-
1		0.5	-	0.5	-	-

ZONE 1
Tasmania
New Zealand South Island

ZONE 2
Adelaide
Brisbane
Canberra
Gold Coast
Melbourne
New Zealand North Island
Perth
Sunshine Coast
Sydney

ZONE 3
Alice Springs
Broken Hill
Broome
Cairns
Darwin
Dubbo
Mackay
Mt Isa
Townsville

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# SURFACE ENERGY CLASSIFICATION

For optimum adhesion, an adhesive must thoroughly “wet out” the surface to be bonded. To wet out a surface(substrate) the adhesive must flow and cover the surface, which allows for maximum contact area between the adhesive and the surface (substrate).

Think of a bead of water on a car. On a freshly waxed car, the water beads up and covers a smaller surface area. On an unwaxed car, the water spreads more across the surface. By waxing the car, the surface energy of the car’s surface has changed and does not allow the bead of water to cover as much area.

In order for a pressure sensitive adhesive to achieve wet out on a surface and ultimate adhesion, one must understand the surface energy of the substrate. The table below lists typical surface energies of commonly used substrates:

## **VERY HIGH SURFACE ENERGY** - (GREATER THAN 50 DYNES/CM<sup>2</sup>)

- STAINLESS STEEL
- ALUMINIUM
- COPPER
- TIN
- ZINC
- LEAD

## **HIGH SURFACE ENERGY** - (35 TO 45 DYNES/CM<sup>2</sup>)

- ALKYD ENAMEL
- POLYCARBONATE
- POLYESTER
- ACRYLIC
- MELAMINE
- ABS
- VINYL
- NYLON
- KAPTON

## **LOW SURFACE ENERGY** - (30 TO 35 DYNES/CM<sup>2</sup>)

- POLYPROPYLENE
- POLYETHYLENE
- POLYSTYRENE
- TEDLAR
- PVA
- EVA
- ACETAL