

Technical Information

# Magna Flow™

Pre-painted steel with  
magnesium added  
technology for superior  
corrosion resistance.

[colorcote.co.nz](http://colorcote.co.nz)



**MagnaFlow™**  
For that extra protection

# A remarkable substrate that heals its own cuts

ColorCote® MagnaFlow™ takes our standard zinc/aluminium alloy-coated steel substrate to the next level with the addition of magnesium. This enables the zinc to 'flow', which seals the cut edges, preventing exposure to premature corrosion. This makes it ideal for harsher environments and those nearer the coast.

Choose the right ColorCote roof and it will always last longer.



Leading New Zealand innovation in pre-painted steel and aluminium



Manufactured and marketed in New Zealand for more than 40 years

## MagnaFlow™

MagnaFlow is a highly durable product with improved cut edge performance designed to give excellent colour retention and high formability at moderate cost.

### Technical

ColorCote MagnaFlow  
Conforms to AS/NZS2728:2013  
Suitable for ISO9223:2012  
Atmospheric Classifications C1 – C4

### Substrate

Hot-dipped zinc/aluminium/magnesium alloy coated steel coil, 240gms/m<sup>2</sup> coating weight.

### Pre-treatment

Corrosion resistant chromate conversion coating.

### Primer

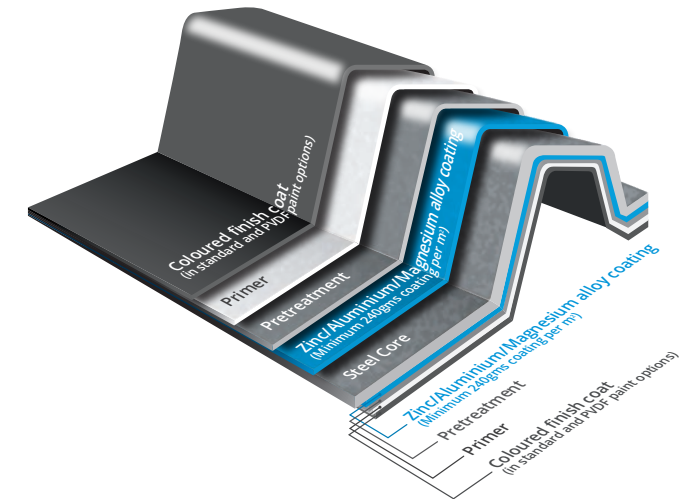
Flexible corrosion resistant chromated primer. Nominal film thickness 7µ on the top side and 5µ on the reverse.

### H Primer Option

When supplied with H primer option, MagnaFlow conforms to: NF P 34-301 & European Norms EN 10 143:2006 & EN 10 346: 2015. In addition it is corrosion resistant to C5M as set out in BS EN10169

### Finish Coat

Flexible exterior acrylic, polyester or modified polyester coating. Nominal film thickness 18µ.



### Backing Coat

Shadow Grey (standard colour) wash coat, 5µ nominal thickness.

### Gloss

Nominally gloss levels are 25%, measured in accordance with ASTM D523-14 (60 degrees). A range of our colours can also be supplied in a low gloss version if required.

### Strippable Film

Products can be supplied with an optional strippable protective film at extra cost. This material has a relatively short life span when exposed to sunlight and weather. It should be removed either just before, or immediately after installation. If stored indoors strippable film should be removed within 12 months of delivery from ColorCote.

## Need an extra durable finish?

MagnaFlow X uses exactly the same substrate but comes with a more protective paint system for use in chemical or industrial environments.

### Technical

ColorCote MagnaFlow X  
Conforms to AS/NZS2728:2013  
Suitable for ISO9223:2012  
Atmospheric Classifications C1 – C4

### Primer

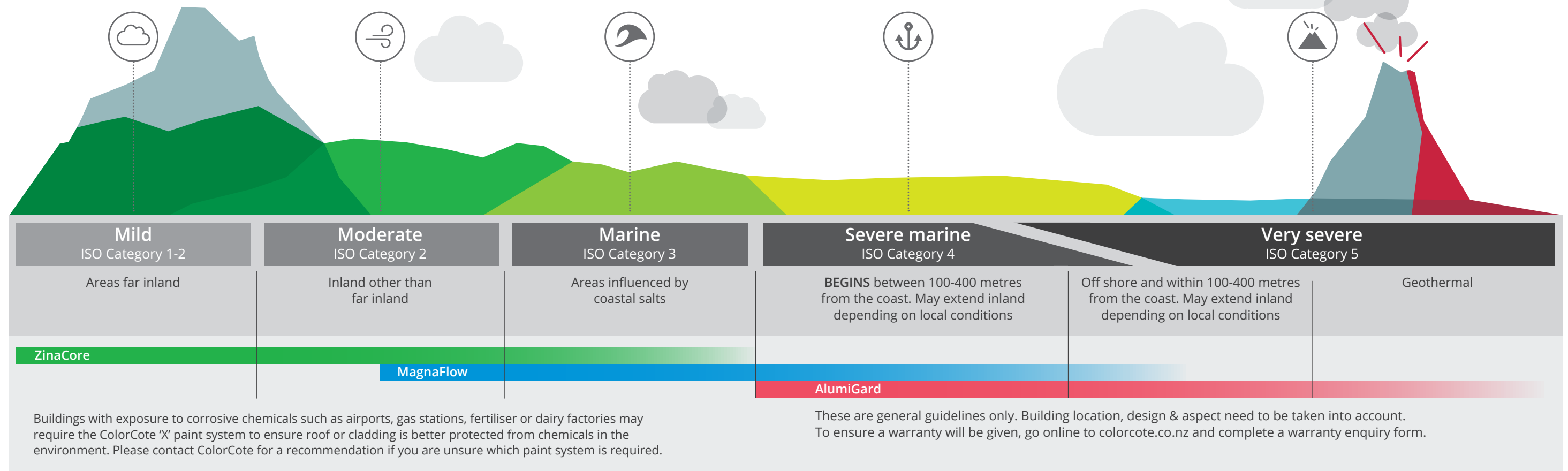
Flexible corrosion resistant chromated primer on both sides. Nominal film thickness 7µ on the top side and 5µ on the reverse.

### Finish Coat

70% PVDF system (Polyvinylidene Fluoride). Nominal film thickness 20µ. The exterior coat of ColorCote MagnaFlow X is a PVDF paint system containing at least 70% PVDF resin in the dry paint film.

# Atmospheric environments

## Usage guide



## MagnaFlow performance testing

**Scratch resistance**  
Good scratch resistance. Testing includes needle scratch test – no marking of paint surface when a needle with a 2kg weight attached is drawn across. ASTM D5178-13.

**Impact resistance**  
AS/NZS2728:2013 Table 2.2 and Appendix E. No loss of paint adhesion after a test piece is struck on the reverse side with a specified force, in line with the test methodology described in Appendix E.

**Bend test**  
AS/NZS2728:2013 section 2.6.1 and Appendix F – No loss of paint adhesion when bent around a diameter equal to five times the thickness of the sheet.

**Heat resistance**  
Suitable for continuous service up to 100°C. Continuous service at higher temperatures may cause some colour change and damage to the paint film.

**Tested under New Zealand's most demanding environmental conditions.**  
Results from lab tests are backed up with ongoing testing in New Zealand's environmental conditions. Test sites are in Penrose, Auckland and Muriwai Beach, northwest of Auckland, providing real world testing in demanding industrial & marine environments.

**Salt spray**  
Meets the requirements of AS/NZS2728:2013 Sections 2.8 and 2.10

**Humidity resistance**  
Meets the requirements of AS/NZS2728:2013 Sections 2.8 and 2.9

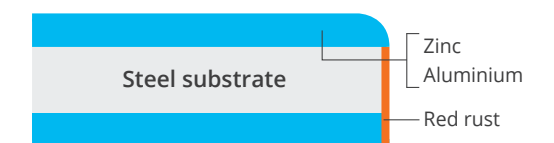
**QUV resistance (durability of coating system)**  
Meets the requirements of AS/NZS2728:2013 Section 2.8 and Table 2.4 after 4000hrs exposure.

Note: Tests are conducted on a flat panel.

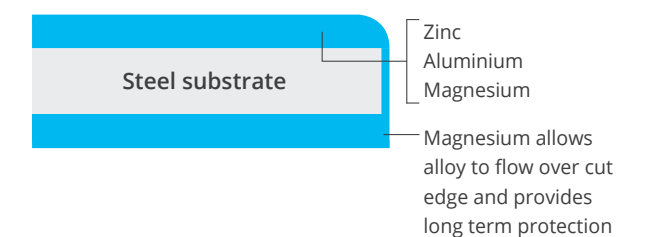
## The magic of magnesium

All steel roofs are susceptible to the elements along cut edges however the addition of magnesium to the standard zinc/aluminium alloy in Magnaflow provides superior corrosion resistance in this area. As time goes on it allows the protective metal coating to microscopically flow over the cut edge. At this point a sacrificial anticorrosive reaction takes place and a robust seal is created.

### Exposed cut on standard zinc/aluminium coated steel



### Anticorrosive reaction of MagnaFlow





## Performance

### Outdoor durability

Colour change during service will depend on the colour chosen, aspect, design of the structure and the environment.

Some chalking may occur. A maximum rating of 2 is expected after 20 years exposure, when measured in accordance with AS/NZS1580.481.1.11:1998.

Scale is between 0 and 5 with a lower number indicating less chalking.

## Recommended end uses

**MagnaFlow** is suitable for roofing, cladding, and rainwater goods. MagnaFlow is ideal for animal shelters, flashings, interior uses, and exterior environments where corrosion levels are moderate.

**MagnaFlow X** is suitable for roofing, cladding and rainwater goods in environments where there is a high risk of deterioration from corrosive chemicals in environments, such as on industrial sites.

For information concerning product use in areas not covered by ColorCote MagnaFlow or MagnaFlow X, refer to the ColorCote AlumiGard technical information brochure or contact ColorCote for details.

## Roof pitch

Do not use a pitch less than three degrees (eight degrees for corrugated profile) to avoid ponding and premature degradation of the coating system.

### Important

ColorCote MagnaFlow and MagnaFlow X are not suitable for use in the following situations:

- For water tanks or areas where a constantly wet environment is maintained.
- In direct contact with concrete or where lime deposits are evident.
- In contact with soil (allow a 75mm run off below cladding sheets to ground level).

## Handling and rollforming

To avoid damaging the paint surface the material must be handled carefully during transport and rollforming.

Pacific Coilcoaters does not recommend the use of rollforming lubricants on our products.

The use of rollforming lubricants will affect performance of pre-painted metal and will lead to staining and uneven, premature fading.

### Storage of coils

It is important to realise that environmental factors such as humidity, moisture and heat may have adverse effects on the performance and / or the appearance of pre-painted long run steel or aluminum products used for the manufacture of cladding or roofing products.

This impact can and may occur whether the material has been stored under cover or not.

In order to minimise this potential impact it is important that good stock rotation policies are practised for all ColorCote® products (ZinaCore™, MagnaFlow™, AlumiGard™) and we would strongly recommend that a simple “first in, first out” approach is taken with product being stored for no more than 12 months.

Failure to follow this accepted practise may have impact on product warranty being issued or accepted by Pacific Coilcoaters.

If you have product that is between 12-24 months old, warranties may be considered on a case by case basis.

## Touch-up paint

ColorCote is a baked on paint system which has different weathering characteristics to standard air drying paints. Do not use touch-up paint on ColorCote products. Scratches should be left alone to heal.

## Clean up

Installation procedures involving self-drilling screws, drills and hacksaws etc will leave deposits of swarf and metal particles. These particles including blind rivet shanks, nails and screws should be swept and washed from the roof regularly. Refer to the MRM Code of Practice for further information.

## Site practice

If nestable profiles become wet while closely stacked, formation of wet storage stain or ‘white rust’ is inevitable.

To minimise the possibility of inadvertent damage:

- **Inspect deliveries on arrival.** If moisture is present, individual sheets should be dried immediately with a clean rag and then stacked and filleted to allow air to circulate and complete the drying process.
- **Well ventilated storage is essential.** Always store metal products stacked and filleted under cover in clean, well-ventilated areas.
- **Outside storage.** Where outside storage is unavoidable, make provision for a fall to allow water to run off. Fillet the sheets and cover with tarpaulin, allowing air to move freely and circulate.
- **Installation.** Best practice is to install upon delivery to avoid exposure to wet or humid elements.

It is the responsibility of the roofing contractor to avoid damaging the roof sheeting during its installation and fixing. Never drag sheets from a pile. Remove by ‘turning off’ the stack. Lift sheets onto the roof, and do not drag over the eaves or the purlins. Use clean footwear. Remove swarf and other contaminants regularly. Avoid transferring sunscreen from hands or knees on to painted MagnaFlow as this can degrade the paint quality. Refer to the MRM Code of Practice for further information.

### Installation

Refer to the MRM Code of Practice for correct installation guidelines, particularly in regard to underlays/building papers, penetrations, flashings, fasteners, pitch and storage.

### Dissimilar metals

When dissimilar metals come into contact with each other, the electric potential difference between the metals establishes a corrosion cell, and accelerated corrosion can occur.

To avoid this problem, the following precautions should be observed:

- Avoid contact or discharges of water from brass or copper pipes on to ColorCote MagnaFlow and MagnaFlow X.
- Do not use non-galvanised steel, copper, brass, lead, stainless steel or monel metal in direct contact with ColorCote MagnaFlow and MagnaFlow X.
- Do not use lead flashings in contact with ColorCote MagnaFlow and MagnaFlow X products. Soft edge aluminium or notching of flashings are the best solutions.
- Tanalised timber contains copper, so must not be used in direct contact with ColorCote MagnaFlow and MagnaFlow X products. Use PVC tape or similar barrier to isolate potential problem points of contact between materials.

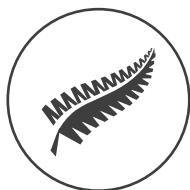
## Minimum maintenance

The service life is extended by regular washing. A manual wash every six months is recommended, more often if contaminants build up. Regularly inspect for damage and failing fasteners, and repair these. Failure to regularly wash areas that don't receive natural rainfall will void warranty.

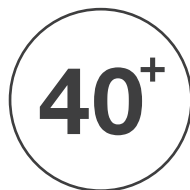
## Unwashed areas

These are typically those areas that are not washed by natural rainfall, such as the underside of eaves, sheltered roofs or wall cladding, under solar panels etc. ColorCote recommends the exclusion of unwashed areas by design wherever possible.

Where this is not possible, then a regular washing programme should be put in place. Contaminants should be removed by low pressure waterblasting (less than 1000psi) or washing with water and a soft bristle brush at least every 6 months, or more frequently in severe environments or if contaminant build-up keeps occurring. For full information, see the ColorCote Minimum Maintenance Schedule.



Leading  
New Zealand  
innovation in  
pre-painted steel  
and aluminium



Manufactured  
and marketed in  
New Zealand for  
more than  
40 years

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