



The New Zealand Ecolabelling Trust

Licence criteria for Pre-painted and resin-coated steel products

EC-57-16

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Specification change history

Minor clarifications, corrections or technical changes made since the specification was last reviewed and issued in October 2016.

Date	Version	Change
04/04/17	October 16-TC1	Category definition restructured to clarify that it does include steel roofing products that are coated after roll-forming or pressing, and that the exclusion from the category of products with non-steel elements applies to flat steel products, not steel roofing products.

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1 Introduction

Environmental Choice New Zealand (ECNZ) is an environmental labelling programme which has been created to help businesses and consumers find products and services that ease the burden on the environment. The programme results from a New Zealand Government initiative and has been established to improve the quality of the environment by minimising the adverse environmental impacts generated by the production, distribution, use and disposal of products, and the delivery of services. The programme is managed by the New Zealand Ecolabelling Trust (The Trust).

ECNZ operates to the ISO 14024:1999 standard "Environmental labels and declarations – Type 1 Environmental labelling - Principles and procedures" and The Trust is a member of the Global Ecolabelling Network (GEN) an international network of national programmes also operating to the ISO 14024 standard.

ISO 14024 requires environmental labelling specifications to include criteria that are objective, reasonable and verifiable. It requires that interested parties have an opportunity to participate and have their comments considered. It also requires that environmental criteria be set, based on an evaluation of the environmental impacts during the actual product or service lifecycle, to differentiate product and services on the basis of preferable environmental performance.

The lifecycle approach is used to identify and understand environmental issues (adverse or beneficial impacts) across the whole life of a product or service (within a defined product or service category). This information is evaluated to identify the most significant issues and from those to identify the issues on which it is possible to differentiate environmentally preferable products or services from others available in the New Zealand market. Criteria are then set on these significant and differentiating issues. These must be set in a form and at a level that does differentiate environmentally preferable products or services, is attainable by potential ECNZ licence applicants and is able to be measured and verified. As a result of this approach, criteria may not be included in an ECNZ specification on all aspects of the lifecycle of a product or service. If stages of a product or service lifecycle are found not to differentiate environmentally preferable products or services, or to have insufficient data available to allow objective benchmarking in New Zealand, those stages will not generally be included in criteria in the specification. For some issues, however, (such as energy and waste) criteria may be set to require monitoring and reporting. These criteria are designed to generate information for future reviews of specifications.

The Trust is pleased to publish this ECNZ specification for Pre-Painted and Resin-Coated Steel Products. The specification provides a means to recognise products that are demonstrably environmentally preferable but are not covered by an existing ECNZ specification.

This specification sets out the requirements that a pre-painted or resin-coated steel product must meet in order to be licensed to use the ECNZ Label. The requirements include some environmental criteria and product characteristics that are generally applicable to a wide range of products and which are common to other ECNZ specifications. The requirements also define a process to set appropriate pre-painted and resin-coated steel product-specific criteria. The pre-painted or resin-coated steel product will need to meet the generally applicable requirements and the product-specific criteria.

The process set out in the proposed specification will require the ECNZ Licence holders to provide a significant amount of information on management and improvement programmes. Information will be required that is of sufficient quality for The Trust to understand and monitor performance and improvement of performance over time. The Trust will use this information to inform future reviews of this specification, including to set criteria that differentiate the product on the basis of environmental preference across the product lifecycle.

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This specification is valid for a period of five years. Twelve months before the expiry date (or at an earlier date if required), The Trust will initiate a further review process for the specification.

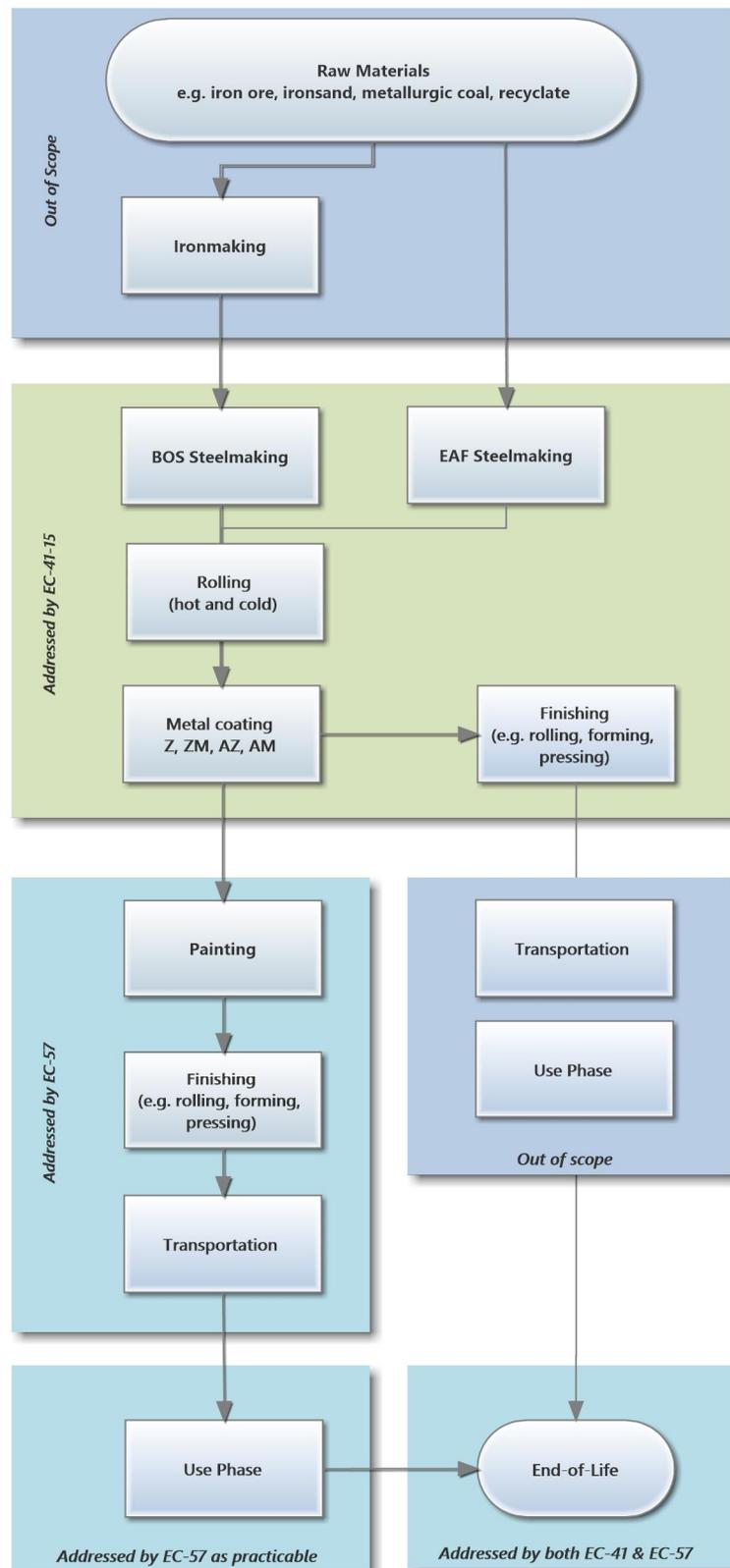
2 Background

Existing ECNZ specification EC-41 Flat and Long Steel Products covers the manufacture of long and flat metal coated steel products, from steelmaking through to metal coating including:

- Long steel for construction products
 - steel bar and coil
 - steel wire rod
- Finished long steel construction products
 - steel bar and rod, such as reinforcing bar or rod
 - steel wire and wire products, such as nails, reinforcing wire, etc.
 - steel seamless pipe, tube and associated fittings
 - steel flats, angles and channels
 - welded wire mesh.
- Flat steel products
 - plate
 - strip
 - hollow sections
 - large diameter welded pipe
 - structural beams (including welded beams)
- Assembled steel products (including welded or assembled products)

Based on market interest, this specification seeks to cover more of the steel value chain and include the painting or coating, and rollforming or pressing, of flat steel products. Figure 1 provides a summary of the phases of the steel product lifecycle covered by EC-41 Flat and Long Steel Products and this specification (EC-57).

Figure 1: ECNZ approach to steel value chain specification



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The following factors have influenced the focus of this specification on pre-painted flat products, and are discussed in more detail in the following sections including:

- Demand: the sectors and products where the majority of pre-painted and resin-coated steel is used
- Supply: the supply chains associated with pre-painted and resin-coated steel products
- Purchasing decision: the way that consumers decide whether to purchase painted and resin-coated steel products
- Influence: coverage and influence of existing ECNZ specifications.

2.1 Market information

Globally, approximately 50% of the steel produced is utilised in the construction sector¹ and a significant proportion of the coated and painted flat steel in the New Zealand market is used in the residential and commercial construction sectors (particularly for roofing).

In addition to metal coatings comprising zinc, zinc & aluminium or zinc, aluminium & magnesium; additional coatings (predominately resins or paints) are applied to steel coil or pressed flat steel to provide protection, and create products that are fit-for-purpose from both an aesthetic and functional perspective. Examples include structural products (such as framing, purlins and girts), roofing, cladding and fencing. Framing, purlins and girts may be coated with a resin to protect them during transport and onsite during construction. Other structural products, such as decking, roofing, cladding and fencing may be pre- or post-painted to help deliver on aesthetic and functional requirements.

The majority of painted steel used in the construction sector is pre-painted or resin-coated steel -- steel which is painted or coated within the manufacturing process, prior to assembly or installation. Products which are painted or coated after forming or assembly are termed post-painted or coated products, and are often powder coated e.g. automobiles, household appliances and furniture. Powder coated steel furniture and fittings are covered under ECNZ specification EC-32.

From a manufacturing and consumption perspective, the integrated nature of the pre-painted and resin-coated steel supply chain lends itself well to specification and licensing. The majority of branded steel products (i.e. products where a consumer could place equal importance on the base-metal and the coated surface characteristics) are pre-painted or coated products. Roofing products are a good example of this: from a consumer perspective there is a clear decision to purchase steel over other roofing options, and then a subsequent decision regarding painted or metal coating. Therefore there is value in understanding base-metal and pre-painted and resin-coated environmental preferability.

There is one integrated manufacturer in New Zealand, where steel is produced, coated and painted. There are two other significant manufacturers (in terms of volume) who paint and form steel coil, and a number of organisations who specialise in rollforming coated and painted coil. Steel coil also enters the New Zealand supply chain from overseas for painting or coating, pressing or rollforming, and as finished product ready for installation.

¹ Worldsteel (updated October 2015), Buildings and Infrastructure, <http://www.worldsteel.org/Steel-markets/Buildings-and-infrastructure.html>

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2.2 Steel finishing

2.2.1 Process stages

The main processing and finishing stages for pre-painted and resin-coated steel products are described below:

- Feedstock: Metal coated steel strip, produced by either the BOS or EAF process. Generally the strip will not be passivated, but in some cases this may have been undertaken as part of the metal coating process. The steel may also enter the product system with a protective oil coating.
- Primer & pre-treatment: the strip is cleaned and a conversion coating applied to ensure good paint adhesion. Primers are used as a thin layer to improve corrosion resistance: currently these commonly contain hexavalent chromium (which is a known carcinogen) as a passivant. Alternative passivating techniques have been (or are being) developed and are implemented to a varying extent for different product categories. Generally, primers are solvent-based; however, there are trials that have been (or are being) undertaken to assess the feasibility of water-borne primers.
- Backer: a protective backing coat is applied to protect the back surface against marking during the colour coating process and transport, and to protect the product from corrosion. For performance and aesthetic reasons, double-sided product may also be produced. Generally, backing coats are solvent-based; however, there are trials that have been (or are being) undertaken into the feasibility of water-borne backers.
- Top coat: the top coat or finish coat provides further protection for the strip and is also often driven by the aesthetics required of the final product, particularly for roofing, fencing and walling applications. In some cases aggregate is added with the topcoat. New Zealand is in a unique position globally, whereby water-borne paints are commonly used as top-coats in place of traditional solvent-based paints.
- Resin: where a passivated metallic-coated product is not painted this may have a resin applied to further protect the steel during transport and onsite.
- Finishing: the process of cutting and shaping the flat steel into the final shape or profile. When rollformed, the strip is passed through a number of pairs of mated profile rolls which gradually and progressively change the shape of a section, resulting in the 'wave' profile associated with steel roofs. Alternatively, the strip may be folded to create harder angles familiar in the profiles of framing and guttering. Flat steel strip may also be pressed or cut to form the final product.

2.2.2 Advancing the paint system

The Trust recognises that the paint system (including pre-treatment, primer, backer and top coat) must be treated as a system due to the potential for environmental impact burden shifting between the elements of the painting process. An example of burden shifting could be if a primer or backer were introduced which requires an increase in the amount of passivant required in order to provide the same level of protection to the strip, and deliver the same level of durability in the final product. Equally, the introduction of an environmentally preferable paint which results in a change to the durability and quality of the final product: the environmental impacts of replacing a steel product would far outweigh the reduced environmental impact of the paint system.

Where there is no burden shifting, or impact on the overall quality or durability of the final product, The Trust recognises that generally water-borne paints are preferable to solvent-borne paints, particularly with regards to their use of:

- Ecotoxins (including naphthalene and trimethylbenzene)
- Carcinogens, mutagens and reproductive toxins
- Hydrocarbon solvents and aromatic hydrocarbon solvents
- Volatile organic compounds (~500 g/litre wet paint).

Comparatively, water-borne paints are safer to handle and transport and have significantly reduced levels of VOCs (~150 g/litre wet paint), although they do require a glycol or amine to improve water solubility of the paint, which are toxic. Afterburners are commonly required to control process emissions of VOCs. If VOC levels in the paint system can be sufficiently decreased, such control equipment may not be required, resulting in reduced energy use and greenhouse gas emissions.

As noted above, New Zealand is unique globally in the use of water-borne paints as the standard top-coat for most pre-painted steel products used in the domestic construction sector. While there are some solvent- and polyester-based top-coats used, they represent (conservatively) less than 60% of the market, tend to be produced for applications other than standard construction, or for export. Progress on transitioning to water-borne primers and backers has been slower, but uptake in New Zealand is no less advanced than in other jurisdictions.

It could be argued that New Zealand is perhaps behind European Union nations in the transition to chromate-free (painted) steel products due to the EU REACH regulations. These regulations have helped shape the market in Europe; however, due to manufacturing methodologies, chromate-based passivation remains the standard approach to strip protection in New Zealand to deliver high quality, durable steel products.

Based on pre-painted and coating technologies available in New Zealand, a number of challenges can be posed to the industry:

How to transition to a fully water-borne paint system without reducing quality / durability or increasing passivation impacts?

How to transition to a chromate-free paint system without reducing quality / durability or increasing the impacts associated with strip protection (paint or passivation)?

How to transition to a fully water-borne, chromate-free paint system without reducing quality / durability?

The Trust supports the transition to chromate-free and fully water-borne paint systems. The Trust also recognises that due to the realities of the market in New Zealand, and the complexities of trading-off between paint / coating and passivation, organisations will progress these goals in different ways. For example, one manufacturer may pursue a water-borne solution and place less effort on trialling and testing chromate-free solutions, while another organisation may focus on improving the primer and pre-treatment or transitioning to a water-borne backer. Therefore, this specification seeks to recognise companies who are proactively researching and testing options to create fully-water-borne paint solutions and transition to chromate-free passivation.

2.3 Specification framework

This specification has been prepared for pre-painted and resin-coated flat steel products produced via the BOS and EAF steelmaking process. As long products are generally not manufactured from pre-painted steel, these are excluded from the scope of this specification.

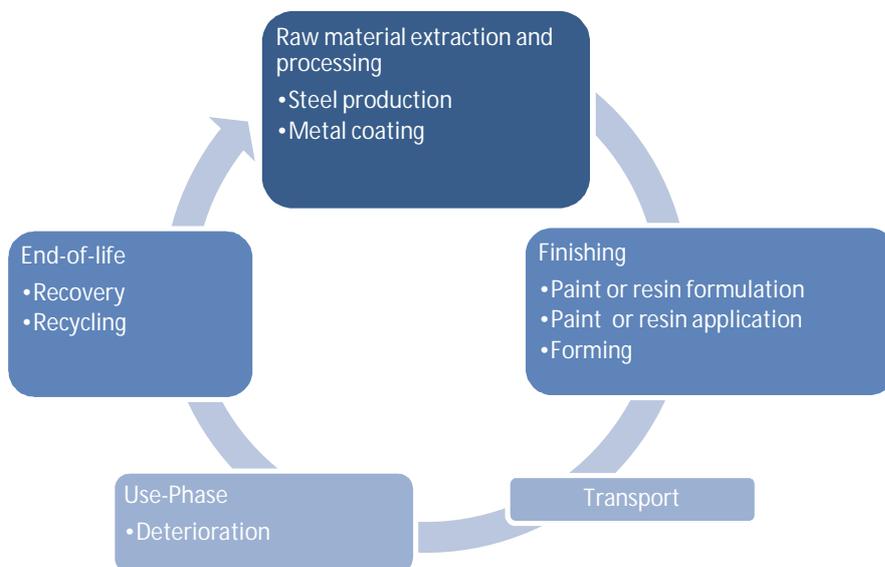
As per EC-41 Flat and Long Steel Products, this specification considers the impacts of steelmaking and metal coating in the production of feedstock to paintlines, and the impacts of ironmaking where this influences site wide emissions. The specification does not include specific criteria for ironmaking, as the nature of ironmaking in New Zealand makes this step in the production process difficult to benchmark, control and verify. EC-41 established that as the pig iron used in EAFs is traded on an open market, the supply chain is broken, making criteria for the supply of pig iron difficult to set, demonstrate compliance with and verify.

Rollforming or pressing to create the finished product is also included in the scope of this specification, to allow final, consumer-facing, products to be licensed.

2.4 Lifecycle issues

As with all ECNZ specification development work, a lifecycle approach has been used to identify and understand the material issues associated with painting, coating and forming flat steel products, and to use these as points by which environmentally preferable products can be differentiated (see Figure 2).

Figure 2: Key impacts addressed across each stage of the product lifecycle



The impacts associated with the production of metal coated steel feedstock are included in the scope of this specification, based on the criteria established in EC-41 Flat and Long Steel Products.

Within the painting or coating application process the following aspects are considered differentiating on the basis of environmental performance:

- Chemicals used in the pre-treatment, primer, backer, topcoat and resin, in particular solvent-based primers and backers and chromate-based passivants
- Energy used in coating ovens
- Discharges to air from the coating ovens
- Waste liquids (paint and chemicals).

In addition, the energy used and waste generated during finishing processes are also considered, as is transport of the finished product from the rollformer or fabricator to site or a retailer.

There have been concerns raised, particularly in the Auckland Region, regarding the potential for contaminated roof runoff from deteriorating metal roofs when in use. These potential impacts are best addressed by this specification in the coating / painting phase by assuring quality paints or coatings are applied to protect the metal coated surface from deterioration.

One of the most significant ways that the lifecycle impacts of steel can be reduced is by recycling steel products at the end of their useful life. Some coatings can result in a product not being recyclable at the end of its useful life, and such coatings are therefore excluded from this specification.

3 Interpretation

Basic Oxygen Steelmaking Process or BOS means a steelmaking furnace that refines molten iron into steel by injecting hot oxygen to drive off impurities and includes Basic Oxygen Furnaces.

Electric Arc Furnace or EAF means a steelmaking furnace that uses high-energy electric arc to melt ferrous scrap, for refining into new steel.

Energy Management Programme means a programme to achieve and sustain efficient and effective use of energy including policies, practices, planning activities, responsibilities and resources that affect the organisation's performance for achieving the objectives and targets of the Energy Policy.

Environmentally hazardous material means any material, chemical or other substance that if released into the natural environment will threaten human or environmental health.

GEN means the Global Ecolabelling Network.

Halogenated organic compound means any organic compound incorporating halogens including fluorine, chlorine, bromine and iodine.

Hazardous Heavy Metal means mercury, lead, cadmium, hexavalent chromium and their compounds.

ISO means International Organization for Standardization.

Label means the Environmental Choice New Zealand Label.

Metallic-Coated means steel (roll or coil) which has a thin layer of zinc deposited on its surface, through a hot-dip or electrolytic process, for the purpose of increasing the steel's corrosion resistance. For the purpose of this document, metallic-coated also includes treatments with zinc-iron, zinc-aluminium, zinc-aluminium-magnesium or other similar zinc-based mixtures.

NZ HSNO Class means a particular hazard classification as defined in the New Zealand Hazardous Substances and New Organisms Act 1996 and associated Regulations

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Volatile Organic Compound or VOC means any organic compound which has a vapour pressure more than 0.1 mm Hg at 25°C. Organic compounds with a boiling point greater than 250°C, measured at a standard pressure of 101.3 kPa, will not be considered to be a VOC

Where references are made in this document to published lists, standards, or documents, the reference should be read as referring to the most recent edition of these lists, standards or documents.

4 Category definition

This category includes:

- Steel roofing products which are painted or coated prior to or after rollforming or pressing processes.
- Flat steel products which:
 - Are manufactured from metallic-coated steel coil or otherwise surface treated to prevent surface corrosion
 - Can be pressed or rollformed to create a final product
 - Are painted, or coated with a resin, prior-to or as part of the rollforming or pressing process.

The category does not include flat steel products which incorporate non-steel elements (e.g., sandwich panels), or flat steel products that have been painted after rollforming or assembly (e.g., industrial coatings).

For the avoidance of doubt, products covered by this specification include: painted or coated metallic-coated steel coil, and steel products for roofing, fencing, framing, guttering, and cladding.

The category does not include spray painted or powder coated furniture or fittings products. Those products could be licensed under EC-32.

To be licensed to use the Label, the pre-painted or resin-coated steel product must meet all of the relevant environmental criteria set out in clause 5 and all of the product characteristics set out in clause 6.

5 Environmental criteria

5.1 Legal requirements

Criteria

The product must comply with the provisions of all relevant environmental laws and regulations that are applicable during the product's lifecycle.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on regulatory compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation identifying the applicable regulatory requirements and demonstrating how compliance is monitored and maintained.

Explanatory notes

Relevant laws and regulations applicable to the facilities that are manufacturing the ECNZ-licensed product and the Licence holder's distribution and sales operations, could, for example, include those that relate to:

- Producing, sourcing, transporting, handling and storing raw materials and components for manufacture
- Manufacturing processes
- Handling, transporting and disposing of waste products arising from manufacturing
- Transporting product within and between countries
- Using and disposing of the product.

The documentation required may include, as appropriate:

- Procedures for approving and monitoring suppliers and supplies
- Information provided to customers and contractors regarding regulatory requirements.
- Evidence of a formal certified environmental management system (for example an ISO 14001 certificate) and supporting records on regulatory compliance (for example, copies of regulatory requirements registers, procedures to manage regulatory compliance, monitoring and evaluation reports on regulatory compliance, internal or external audits covering regulatory compliance and management review records covering regulatory compliance)
- Copies of published environmental, sustainability and/or annual reports expressly addressing environmental regulatory compliance (for example verified environmental statements prepared under the European EMAS regulations)
- Audit reports completed by independent and competent auditors addressing regulatory compliance (for example, reports for other eco-label licences or reports from regulator audits)
- Participation by the supplier in the licence applicants/holders own supplier audit programme.

It is not intended to require licence holders to accept increased legal responsibility or liability for actions that are outside their control. The Trust's intention is to ensure any potential for environmental regulatory non-compliance associated with an ECNZ labelled product is managed to a level that minimises risk of reputation damage to the ECNZ label and programme.

5.2 Feedstock

Criteria

Steel feedstock must meet the ECNZ requirements for Steel Products in EC-41 Flat and Long Steel Products.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by a copy of the ECNZ certificate or an assessment report demonstrating compliance for the steel used.

5.3 Passivation

Zinc and zinc alloy coated steels may be passivated with hexavalent chromium (chrome 6+) as part of the steel manufacturing process or application of the paint or coating system. However, the paint or coating used on the outermost painted or coated layer on both the top- and bottom-side of the product must not be formulated with hexavalent chromium (refer criteria at 5.4).

Criteria

- a Steel products that are not zinc or zinc alloy coated may not be passivated with solutions containing hexavalent chromium (chrome 6+)
- b For zinc and zinc alloy coated steels that are passivated with chromate solutions, the Licence Holder must annually report to The Trust on measures to reduce, and where possible eliminate, chromate passivation, including:
 - total volume of chromate solution used for ECNZ licensed products
 - total quantity of steel used for ECNZ licensed products that is passivated using chromate solution
 - the findings of any investigations undertaken into alternatives to chromate passivation
 - a proposed programme for future investigations into alternatives to chromate passivation, including timeframes.

Verification required

Conformance with these requirements shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by documentation that includes:

- Where passivation is undertaken by the ECNZ licence holder, an annual report to The Trust on the research undertaken to reduce, and where possible eliminate, chromate passivation from the paint system, including:
 - confirmation that the topmost layer (whether the topside or reverse side of the sheet) is not formulated with hexavalent chromium
 - evidence that the research has been reviewed and discussed by senior management on a regular basis (at least annually)
 - a summary of current barriers to the implementation of chromate free passivation
 - next steps for additional research / testing
 - timeframes for transitioning to a chromate free solution (noting that these may be amended year-on-year based on research results)

OR

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- Where passivation is not undertaken by the ECNZ licence holder, an annual report to The Trust on investigations undertaken to procure and use steels which have been passivated with alternatives to chromate, including:
 - evidence that investigations into alternatives have been reviewed and discussed by senior management on a regular basis (at least annually)
 - barriers to procuring chromate free products
 - next steps for additional research / testing
 - timeframes for transitioning to a chromate free solution (noting that these may be amended year-on-year based on research results).

Explanatory notes

Clause 5.3(b) has been included as there are currently no viable and environmentally preferable alternatives to chromate passivation for zinc and zinc alloy coated steel products. However, once alternatives are commercially viable, The Trust intends to entirely prohibit the use of chromate passivation. In the interim, The Trust requires licence holders to be actively researching alternatives to chromate passivation, and discussing these with senior management internally.

5.4 Paint system

The following criteria and verification requirements apply to pre-painted coil, and products made from pre-painted coil.

5.4.1 Water-borne paints

The following criteria apply to all top-coat paints, and any water-borne paints used within the paint system.

Criteria

- a Top-coats and water-borne paints used in the paint system must meet all the requirements to be classified as non-hazardous or approved under the Surface Coatings and Colourants (Subsidiary Hazard) Group Standard 2006 under HSNO (or equivalent standard).
- b Top-coats and water-borne paints used in the paint system must be formulated with:
 - compounds that do not contain mercury, lead, cadmium, arsenic, or their compounds.
 - no more than 3.5% by weight of the formulated paint, of substances classified as acutely toxic (fatal or toxic) to human health (NZ HSNO Classes 6.1B or 6.1C).
 - VOC levels of no more than 170 g/litre wet paint.
- c Top-coats and water-borne paints used in the paint system must not be formulated with substances classified as:
 - ecotoxic (NZ HSNO Classes 9.1A, 9.1B, 9.2A, 9.2B, 9.3A, 9.3B, 9.4A, or 9.4B)
 - known or presumed human mutagens, carcinogens or reproductive or developmental toxicants (NZ HSNO Classes 6.6A, 6.7A or 6.8A).
- d Any paint used on the outermost layer on both the top- and bottom-side of the product must not be formulated with hexavalent chromium.

Verification required

Conformance with these requirements shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by Safety Data Sheets or documentation from the paint manufacturer confirming for the paint formulation(s) used for licensed product(s):

- The paint hazard has been assessed and has been shown to be non-hazardous or within the scope of the Subsidiary Hazard Group Standard
- VOC levels (g/litre wet paint)
- Proportion (as a percentage) of chemicals classed as acutely toxic (fatal or toxic) – Classes 6.1B or 6.1C)
- Paints are not formulated with substances with the classifications listed in clause 5.4.1(c)
- The paint is not formulated with hexavalent chromium if it is used as the outermost layer of either the top- and bottom-side of the product.

Explanatory notes

Paints which are currently licensed under an existing ECNZ specification (e.g., EC-07 Paints) are considered to comply with these criteria.

5.4.2 Solvent-borne paints

The following criteria apply to all primer and backer paints which are not water-borne used within the paint system.

Criteria

- a Primer and backer coats which are solvent-based must comprise:
 - VOC levels of no more than 500 g/litre wet paint.
- b The licensee must report the percentage by weight of the formulated paint, of substances that are:
 - classified as known or presumed human carcinogens (NZ HSNO Class 6.7A)
 - classified as very ecotoxic or ecotoxic in the aquatic environment (NZ HSNO Classes 9.1A and 9.1B)
- c Primers and backers must not be formulated with:
 - compounds containing mercury, lead, cadmium, arsenic, or their compounds
 - substances classified as ecotoxic (NZ HSNO classes 9.1C, 9.2A, 9.2B, 9.3A, 9.3B, 9.4A, 9.4B)
 - known or presumed human mutagens or reproductive or developmental toxicants (NZ HSNO Classes 6.6A or 6.8A).
- d Any paint used on the outermost layer on both the top- and bottom-side of the product must not be formulated with hexavalent chromium.

Verification required

Conformance with these requirements shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by Safety Data Sheets or documentation from the paint manufacturer confirming for the paint formulation(s) used for licensed product(s):

- VOC levels (g/litre wet paint)
- Proportion (as a percentage) of chemicals classed as very ecotoxic or ecotoxic in the aquatic environment (NZ HSNO Classes 9.1A or 9.1B)
- Proportion (as a percentage) of chemicals classed as known or presumed carcinogens (NZ HSNO Class 6.7A)
- Paints are not formulated with products listed in clause 5.4.2(c)
- The paint is not formulated with hexavalent chromium if it is used as the outermost layer on either the top- and bottom-side of the product.

5.4.3 Aggregate

The following criteria apply to aggregate added to the surface of a pre-painted steel product as part of the painting and finishing process.

5.4.3.1 Quarried aggregate

Criteria

Quarries from which aggregates are obtained for inclusion in the finished surface of a licensed pre-painted steel product must have and implement:

- a Management plans including policies and procedures to minimise adverse effects from the following potential impacts:
 - noise
 - vibration
 - dust
 - discharges to surface water, groundwater, oceans or land.
- b A quarry restoration plan.
- c When used as part of the product system, natural aggregates must not be additionally coloured or coated in advance of inclusion in the product system.

Verification required

Conformance with these requirements shall be stated in writing and signed by the Chief Executive or authorised representative of the aggregate supplier and countersigned by the Chief Executive or authorised representative of the applicant company. This statement shall be supported by documentation, including:

- Copies of the relevant quarry management plans
- Records demonstrating the quarry management plans are being effectively implemented (including monitoring results)
- Confirmation that natural aggregates are not coloured or coated prior to inclusion in the product system.

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5.4.3.2 Recycled aggregate alternatives

Criteria

- a The paintline / coatingline operator must develop and implement effective policies and procedures and / or a programme to:
 - identify opportunities for using recycled aggregate in place of virgin aggregate
 - consider the lifecycle implications of transitioning to recycled aggregate, including the impact of any additional processing or coating required to make the aggregate fit-for-purpose
 - regularly review the business case for sourcing aggregates with lower embodied environmental impact.
- b The Licence Holder must annually report to The Trust on its policies, procedures and programme for the implementation of these.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the paintline / coatingline operator and countersigned by the applicant company (if these are different entities). This statement shall be accompanied by documentation that:

- Describes the management policies, procedures and / or plan
- Describes the opportunities for using recycled aggregate investigated and implemented in the previous year (where applicable) including:
 - percentage of recycled aggregate used in specific product / batches (reported as m² or product)
 - source of any recycled aggregate used
 - results of any chemical analysis for contaminants undertaken on any recycled aggregate used, or determined to be inappropriate
 - results of any analysis regarding the lifecycle benefits or improvements of the recycled aggregate versus natural aggregate. This should include calculations or evidence to confirm that the processing required to make recycled aggregates fit-for-purpose does not negate the environmental benefits of their use when compared to virgin material.
 - updated evaluation of current barriers to the use of recycled aggregates
 - evidence that the results of the programme have been reviewed and discussed by senior management on a regular basis (at least annually).

5.4.4 Paint system innovation

Criteria

- a The licence holder must have a proactive approach to developing a fully water-borne paint system which does not shift the environmental impact of strip or tile protection to another part of the painting or coating process or product lifecycle. This may include, but is not limited to:
 - an in-house research and testing programme
 - participating in international research and testing
 - partnering with other members of the supply chain to research and test water-borne alternatives.
- b Licence holders must report annually to The Trust on research and testing of water-borne paints to replace solvent-based paints in their paint system including:
 - the findings of any research or testing undertaken into alternatives to solvent-based elements of the paint system
 - a proposed programme for future research and testing into alternatives to solvent-based paints, including timeframes.

Verification required

Conformance with these requirements shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by documentation that includes:

- A description of the approach required by (a)
- An annual report to The Trust on the research and/or testing undertaken into the use of water-borne paint systems including:
 - evidence that the research has been reviewed and discussed by senior management on a regular basis (at least annually)
 - evidence that the research takes into the account the possibility of burden shifting and includes this in the implementation evaluation, particularly with regards to any resulting increased dependence on a chromate-based passivation system
 - current barriers to the implementation of a fully water-borne paint system
 - next steps for additional research / testing
 - timeframes for transition to a fully water-borne solution (noting that these may be staged based and amended year-on-year based on research results).

Explanatory notes

Clause 5.4.4 has been included as there are currently no viable fully water-borne paint systems for pre-painted steel products. However, once fully water-borne systems are commercially viable, The Trust intends to entirely prohibit the use of solvent-based paints within the paint system. In the interim, The Trust requires licence holders to be actively researching alternatives to solvent-based paints, and discussing these with senior management internally.

5.5 Resin coating

The following criteria apply to products which are coated with an acrylic resin versus being painted.

Criteria

Resins used to coat metallic-coated steel must not be formulated with chemicals classified as:

- Ecotoxic (NZ HSNO Classes 9.1A, 9.1B, 9.2A, 9.2B, 9.3A, 9.3B, 9.4A, 9.4B)
- Known or presumed human mutagens, carcinogens or reproductive or developmental toxicants (NZ HSNO Classes 6.6A, 6.7A or 6.8A).

Verification required

Conformance with these requirements shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. The statement shall be supported by Safety Data Sheets or documentation from the resin manufacturer confirming that the resin(s) used on the licensed product(s) are not formulated with the substances listed in criteria 5.5.

5.6 Paintline or coating operations

The following criteria and verification requirements apply to the manufacturing lines and sites where steel coil or strip is painted or resin coated.

The Trust recognises that efficiencies may change based on the size and nature of manufacturing sites, and therefore, where performance reporting is required, request that this is done on an absolute basis (i.e. total energy used and total m² of product processed per annum). This may be prorated to reflect licensed product volumes.

5.6.1 Energy management

The paintline / coatingline operator must have an energy management policy, procedures and / or management plan in place to monitor energy use from the paintline or coatingline, and actively explore ways to reduce energy demand. The policy, procedures and / or plan may cover the paintline only, or extend facility- or company-wide.

If rollforming or pressing are integrated into the painting or coating operations (i.e. undertaken within the same facility), these processes may be covered by this policy, procedures and / or plan, or reported separately as per the requirements of clause 5.7.1.

Criteria

- a The paintline / coatingline operator must develop and implement effective energy management policies and procedures and / or an energy management programme to:
 - monitor energy use per m² of strip painted or coated
 - investigate any changes to energy efficiency on the line
 - identify opportunities for energy efficiency improvements, particularly with regards to the operation of coaters and ovens
 - regularly review the business case for implementing energy efficiency measures.
- b The Licence Holder must annually report to The Trust on the programme and its implementation.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the paintline / coatingline operator and countersigned by the applicant company (if these are difference entities). This statement shall be accompanied by documentation from the paintline / coatingline operator which:

- Describes the energy management policies, procedures and / or plan
- Evidences that opportunities for energy efficiency improvement have been reviewed and discussed by senior management on a regular basis (at least annually)
- Describes the energy management programmes investigated and implemented in the previous year (where applicable)
- Describes barriers to the implementation of energy efficiency initiatives (where applicable)
- Includes a report on annual energy use by fuel type and the total m² of product painted / coated (noting that this may be prorated to licensed product volumes where appropriate).

5.6.2 Material efficiency

The paintline / coatingline operator must have systems and processes in place to monitor and improve material efficiency to ensure that waste of key material inputs are minimised within the process.

Criteria

- a The paintline / coatingline operator must develop and implement an effective material efficiency monitoring programme which will cover (at a minimum):
 - paint or resin use
 - aggregate use (where applicable)
 - steel use
 - the volume and recyclability of packaging used for transport of product from the manufacturer (e.g. steel strap, protective film)
 - policies and procedures to:
 - o monitor material efficiency per m² of strip painted or coated
 - o investigate any changes to material efficiency on the line
 - o identify opportunities for material efficiency improvements
 - o regularly review the business case for implementing material efficiency measures.
- b The Licence Holder must annually report to The Trust on the programme and its implementation.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the paintline / coatingline operator and countersigned by the applicant company (if these are difference entities). This statement shall be accompanied by documentation that:

- Describes the material efficiency management policies, procedures and / or plan
- Evidences that opportunities for improved material efficiency improvement have been reviewed and discussed by senior management on a regular basis (at least annually)

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- Describes the material efficiency programmes investigated and implemented in the previous year (where applicable), noting that this may be prorated to licensed product volumes where appropriate
- Describes barriers to the implementation of material efficiency initiatives (where applicable)
- Includes a report on annual material efficiency as a percentage total of inputs versus outputs.

Explanatory notes

Material efficiency is to be calculated as the total mass of saleable product(s) produced by the painting or coating process divided by the total inputs (by mass) to the painting or coating process. This should be calculated for ECNZ licensed product only, and may be calculated pro rata from site-wide data. All key raw materials used in the painting or coating process should be included (where applicable):

- Steel
- Primer and pre-treatments
- Paints
- Resins
- Aggregates
- Solvents and cleaning chemicals
- Oils and lubricants.

5.6.3 Emissions to air

Emissions to air from the paintline or coatingline must be monitored, and options to reduce emissions must be evaluated.

Criteria

- Discharges to air of particulates (PM₁₀) and VOCs from the paintline or coating process shall be demonstrated to result in an acceptable and environmentally sustainable level of impact on the quality of the receiving environment.
- The paintline / coatingline operator must develop and implement effective emissions management policies and procedures and / or an emissions management programme to:
 - track and evaluate emissions of particulates (PM₁₀) and VOCs per m² of strip painted or coated
 - investigate any changes to emissions in a timely manner
 - identify opportunities for point source emissions improvements, particularly with regards to operation of coaters and ovens
 - regularly review the business case for implementing air quality improvement measures.
- The Licence Holder must annually report to The Trust on the air quality improvement programme and its implementation.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be accompanied by documentation from the paintline or coatingline operator that:

- Provides an assessment of discharges to air identified in (a) and impact on the receiving environment completed by a person or agency competent to complete such an assessment (an assessment of environmental effects and other supporting information lodged in support of a resource consent application would be deemed to meet this criterion)
- Describes the emissions management policies, procedures and / or plan
- Describes any corrective actions undertaken in the previous year to operate within consented operational limits
- Includes a copy of the paintline or coatingline's preventative maintenance plan for all air emission control equipment
- Describes the emissions reductions programmes investigated and implemented in the previous year (where applicable)
- Evidences that opportunities to reduce emissions have been reviewed and discussed by senior management on a regular basis (at least annually)
- Describes barriers to the implementation of air emissions reduction opportunities
- Includes a report to the Trust on particulates (PM₁₀) and VOCs in the context of total m² of product painted / coated.

5.6.4 Effluent management and water use

The paintline or coatingline operator must have systems and processes in place to monitor the quality of discharges of effluent and manage sludge and slushing oil, and to evaluate opportunities to improve effluent quality, reuse sludge and reduce potable water use.

Criteria

- a Discharges to sewer or the environment from the paintline or coating processes (including process water, cooling water and stormwater) shall be demonstrated to result in an acceptable and environmentally sustainable level of impact on the quality of the receiving environment.
- b The paintline or coatingline operator must report on how waste sludge, oil or sediment is reused, or demonstrate that these are disposed of to an appropriate location.
- c The paintline / coatingline operator must develop and implement effective effluent management policies and procedures and / or an effluent management programme to:
 - monitor the quality of discharges to sewer or the environment from the paintline or coatingline, or from any associated wastewater treatment plant
 - investigate any changes to discharge quality in a timely manner
 - identify opportunities to reduce the levels of oil, grease, paint, chemicals or other pollutants which enter the wastewater or stormwater systems
 - identify opportunities to reuse waste sludge, oil or sediment
 - identify opportunities to reuse process water, use recycled water or harvest water onsite to reduce potable water use
 - regularly review the business case for implementing effluent quality improvement, waste sludge, oil or sediment reuse and potable water use reduction initiatives.

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- d The Licence Holder must annually report to The Trust on its programme and its implementation.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the Applicant Company. This statement shall be supported by documentation from the paintline or coatingline operator that:

- For discharges identified in (a), an independent assessment of the discharge quality and its impact on the receiving environment completed by a person or agency competent to complete such an assessment. The assessment should be based on the quality of discharge at the point at which it exits the site and enters any combined or municipal waste collection and treatment system, or discharges to the natural environment.
- Describes effluent, oil and sludge management policies, procedures and / or plan
- Includes a summary of annual monitoring results of discharges to sewer
- Describes any corrective actions undertaken in the previous year to operate within consented operational discharge limits
- Confirms that any sludge, oil or sediment removed from treated effluent were reused or disposed of in an appropriate manner
- Includes a copy of the paintline or coatingline's preventative maintenance plan for all effluent, oil, waste water or sediment control equipment / processes
- Describes the effluent quality improvement initiatives investigated and implemented in the previous year (where applicable) and current barriers to implementation (where applicable)
- Describes the sludge, oil or sediment reuse initiatives investigated and implemented in the previous year (where applicable) and current barriers to implementation (where applicable)
- Describes initiatives investigated and implemented in the previous year (where applicable) to minimise potable water use and current barriers to implementation (where applicable)
- Evidence that opportunities have been reviewed and discussed by senior management on a regular basis (at least annually).

5.7 Rollforming or pressing

The following criteria apply to all products which are rollformed or pressed to form the final licensed product. The criteria do not apply if the product to be licensed is painted coil which has not been pressed or rollformed.

The Trust recognises that efficiencies may change based on the size and nature of manufacturing sites, and therefore, where performance reporting is required, request that this is done in the context of total energy used and total volume of strip processed (m²), to allow evaluation of energy per m². This may be prorated to licensed product volumes where appropriate.

5.7.1 Energy management

The finisher must have a plan in place to monitor energy use from the rollforming or pressing plant, and to actively explore ways to reduce energy demand. The policy, procedures and / or plan may cover the rollforming / pressing facilities only, or extend site- or company-wide.

If rollforming or pressing are integrated into the painting or coating operations (i.e. undertaken within the same facility), these processes may be covered by the policy, procedures and/or plan, or reported as per the requirements of clause 5.6.1.

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Criteria

- a The finisher must develop and implement effective energy management policies and procedures and / or an energy management programme to:
 - monitor energy use per m² of strip formed
 - investigate any changes to energy efficiency across the site
 - identify opportunities for energy efficiency improvements
 - regularly review the business case for implementing energy efficiency measures.
- b The Licence Holder must annually report to The Trust on the programme and its implementation.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be accompanied by documentation from the finisher that:

- Describes the energy management policies, procedures and / or plan
- Describes the energy management programmes investigated and implemented in the previous year (where applicable) and barriers to implementation (where applicable)
- Evidences that opportunities to improve energy efficiency have been reviewed and discussed by senior management on a regular basis (at least annually)
- Includes a report on annual energy use by fuel type in the context of total m² rollformed or pressed into final product (noting that this may be prorated to licensed product volumes where appropriate).

5.7.2 Transport

The following criteria apply to finishers who supply finished product to wholesalers, retailers or directly to site.

Criteria

- a The finisher must develop and implement a transport management policy which supports the:
 - identification of opportunities to consolidate or backfill to minimise the number of truck movements associated with delivering finished product to customers
 - promotion of the business case for implementing transport measures that reduce adverse environmental effects.
- b The Licence Holder must annually report to The Trust on the programme and its implementation.

Verification required

Conformance with this requirement shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be accompanied by documentation from the finisher that:

- Describes the transport policy
- Describes the transport programmes investigated and implemented in the previous year (where applicable) and current barriers to implementation (where applicable)
- Provides evidence that opportunities to improve transport efficiency or reduce transport-related carbon emissions have been reviewed and discussed by senior management on a regular basis (at least annually).

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5.8 Storage of hazardous materials and waste management

The following criteria apply to the paintline / coatingline, and the rollforming / pressing operations (where these are included in the lifecycle of the licensed product).

5.8.1 Storage of hazardous materials and waste

Criteria

The paintline or coatingline operator, and rollformer or presser (where rollforming or pressing are included in the lifecycle of the licensed product), must have and implement effective management policies, procedures and systems covering the appropriate storage and handling of environmentally hazardous materials, including raw materials and wastes. These procedures shall:

- a Ensure any storage of environmentally hazardous materials is located and managed to prevent contamination of surface water or land, including ensuring potentially hazardous liquids are banded.
- b Include a Spill Response Plan detailing procedures to identify, contain and clean-up any spill of potentially hazardous substances.

Verification Required

Conformance with this requirement shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the Applicant Company. This statement shall be supported by documentation that includes:

- Details, including photographs if appropriate, of the location and type of storage facilities on site and the materials stored in each
- A copy of the Spill Response Plan and records of test/drills, implementation and reviews.

5.8.2 Segregation of non-hazardous waste

Criteria

The paintline or coatingline operator, and rollformer or presser (where rollforming or pressing are included in the lifecycle of the licensed product), must have and implement effective management policies, procedures and systems to ensure that waste is segregated to allow maximum levels of recycling. These procedures shall ensure that there are separate, clearly labelled bins in the rubbish area for recyclable materials to be segregated, including, but not limited to bins for:

- steel scrap for recycling
- cardboard for recycling.

Verification Required

Conformance with this requirement shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the Applicant Company. This statement shall be supported by documentation that includes details, including photographs if appropriate, of the location and type of bins included in rubbish storage areas, including evidence of clear signage.

5.9 Recyclability

The following criteria apply to the paintline / coatingline, and the rollforming / pressing operations (where these are included in the lifecycle of the licensed product).

Criteria

Steel products must not be impregnated, labelled, coated or otherwise treated in a manner which prevents recycling in New Zealand or in the country where the product is used.

Verification Required

Conformance with these requirements shall be stated in writing and signed by the Chief Executive or authorised representative of the applicant company. Relevant test certificates and information sheets shall be supplied for review.

6 Product characteristics

Criteria

The product shall be fit for its intended use and conform, as appropriate, to relevant product performance standards including (a) and (b), and either of (c) or (d):

- a AS1397: Continuous hot-dip metallic coated steel sheet and strip – coatings of zinc and zinc alloyed aluminium and magnesium
- b AS/NZS 2728: Prefinished / prepainted sheet metal products for interior / exterior building applications – performance requirements
EITHER OF:
- c Chalk ratings undertaken in accordance with AS1580: Paints and related materials – Methods of test
OR
- d Colour retention testing (CIE Lab units, Delta E).

Verification Required

Conformance with these requirements shall be demonstrated by providing a written statement of compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by documentation:

- Identifying the applicable standards, specifications and or consumer/customer requirements including AS1397 and AS/NZS 2728
- Undertaking chalk rating or colour retention testing in accordance with AS1580 or CIE Lab units
- Demonstrating how compliance is monitored and maintained (including quality control and assurance procedures)
- Records of customer feedback and complaints.

7 Requirements and notes for licence holders

Monitoring compliance

Prior to granting a licence, The Trust will prepare a supervision plan for monitoring ongoing compliance with these requirements. This plan will reflect the number and type of products covered by the licence and the level of sampling appropriate to provide confidence in ongoing compliance with criteria. This plan will be discussed with the licence applicant and when agreed will be a condition of the licence.

As part of the plan, The Trust will require access to relevant quality control and production records and the right of access to production facilities. Relevant records may include formal quality management or environmental management system documentation (for example, ISO 9001 or ISO 14001 or similar).

Licence holders are required to advise The Trust immediately of any non-compliance with any requirements of this specification which may occur during the term of the licence. If a non-compliance occurs, the licence may be suspended or terminated as stipulated in the Licence Conditions. The licensee may appeal any such suspension.

The Trust will maintain the confidentiality of identified confidential information provided and accessed during verification and monitoring of licences.

Using the Environmental Choice Label

The Label may appear on the wholesale and retail packaging for the product, provided that the product meets the requirements in this specification and in the Licence Conditions.

Wherever it appears, the Label must be accompanied by the words "Pre-Painted and Resin-Coated Steel Products" and the Licence Number e.g. 'licence No1234'.

The Label must be reproduced in accordance with the ECNZ programme's keyline art for reproduction of the Label and the Licence Conditions.

Any advertising must conform to the relevant requirements in this specification, in the Licence Conditions and in the keyline art.

Failure to meet these requirements for using the ECNZ Label and advertising could result in the Licence being withdrawn.