



The New Zealand Ecolabelling Trust

Licence Criteria for Paper products

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Specification change history

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Date	Version	Change

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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 and maximising the beneficial 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 standard "Environmental labels and declarations – Type I 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, attainable 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 life cycle, to differentiate products and services based on preferable environmental performance.

The life cycle 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 life cycle of a product or service. If stages of a product or service life cycle 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 that require monitoring and reporting. These criteria are designed to generate information for future reviews of specifications.

The Trust is pleased to publish this specification for Paper products. This specification sets out the requirements that Paper products will be required to meet in order to be licensed to use the ECNZ Label. The requirements include environmental criteria and product characteristics. The specification also defines the testing and other means to be used to demonstrate and verify conformance with the environmental criteria and product characteristics.

This specification has been prepared based on an overview level life cycle assessment, information from specifications for similar products from other GEN-member labelling programmes, relevant information from other ECNZ specifications, information made available from existing licence holders and information in publicly available paper procurement and paper industry publications.

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 review process for the specification.

2 Background

Manufacturing and use of paper products can, potentially, result in significant burdens being placed on the environment. These burdens can occur throughout the lifecycle of the paper product, from sourcing of the raw materials and manufacturing the pulp and paper, through to disposal of the end product after use.

Sustainable management of forests is an issue of much concern and debate internationally. A number of schemes exist to define principles, criteria and measures of sustainable management and provide processes for Sustainable Forest Management (SFM) to be independently assessed and assured. SFM can be used in native and plantation forests. Unsustainable management of native forests can lead to the destruction of valuable ecosystems and unsustainably managed plantations can result in conversion of native forests or other ecologically valuable land uses, for production of timber. The criteria in this ECNZ specification accommodate the input of virgin fibre by allowing only native fibre from forests which have been certified as being sustainably managed, and requiring a proportion of the virgin fibre from plantations to be certified as being sustainably managed. The criteria also promote the use of recycled fibre, whilst recognising that fibres can only be recycled a limited number of times. Also, some input of virgin fibre is required in the manufacturing of certain products to achieve required strengths and/or finishes.

In response to concerns over unsustainable management of forests, a range of alternatives to wood fibre are now being used to manufacture paper, including bamboo, hemp and bagasse. This specification includes criteria which address the environmental impacts associated with these alternatives.

During manufacture, process effluents can contain high concentrations of natural organic materials which deplete oxygen in receiving waters, adversely impacting plant and animal life. Sulphur, organochlorines and other hazardous substances, particularly halogenated organics, used in or resulting from the manufacturing process (e.g. from bleaching or for cleaning of equipment) can be persistent. They can, potentially, bioaccumulate and have toxic effects on the environment if discharged in effluents. Poorly-biodegradable detergents (surfactants) may also accumulate and be toxic or otherwise harmful in the environment if discharged.

This specification addresses the issue of emissions from pulp and paper manufacture. It aims to reduce or eliminate the discharge of toxic and environmentally persistent compounds, oxygen consuming organic material and organochlorines into the environment.

The EC-60 specification incorporates the best practice approach to criteria for hazardous substances taken in other ECNZ specifications. This approach is based on international best practice and guidance developed by the European Union (EU). The criteria include bans or restrictions on chemicals based on their hazardous properties (e.g. carcinogens or ecotoxic substances). Where necessary and appropriate, substance-specific requirements are included where there are sound technical reasons to address them on an exception basis.

Criteria are also included in this specification regarding waste management, energy efficiency, packaging and product safety. These criteria have been included to address environmental issues across the entire life-cycle of the products.

Some GEN-member eco-labels are now considering including criteria on social issues in their eco-labelling specifications. These GEN-members believe that environmentally preferable products should also be socially responsible. There are many social issues within the supply chain and product life cycle from raw material harvesting, processing, to end user. Social issues of concern during manufacturing typically include fair pay, child labour, modern slavery, workers' rights and employer's responsibilities, community impacts, training, education, and health and safety.

Emphasising social aspects within this specification aligns ECNZ with the global movement to consider both environmentally and socially acceptable practices when developing and manufacturing products. Criteria within the specification are marked with 🧑🏿🧑🏻 where they relate to a social issue, and with 🌍 where they relate to an environmental issue. Some criteria are marked with both a 🌍 and 🧑🏿🧑🏻.

Based on a review of currently available information, the following product category requirements will produce environmental and social benefits by reducing fibre use from unsustainable sources; decreasing emissions to air and water; minimising the use of harmful chemicals; managing production waste and water use; and improving energy efficiency. As information and technology change, product category requirements will be reviewed, updated and possibly amended.

3 Interpretation

🧑🏿🧑🏻 (Social Responsibility) means a criterion or sub-clause within the ECNZ specification which addresses a social concern.

🌍 (Environmental Responsibility) means a criterion or sub-clause within the ECNZ specification which addresses an environmental concern.

ADt means Air dry tonne of pulp (ADt) meaning dry solids content of 90 %.

AOX means Absorbable Organic Halogen. A measure of the quantity of chlorine (and other halogens) associated with organic compounds.

APEOs (Alkylphenol ethoxylates) are defined as substances that upon degradation produce alkyl phenols. They include nonylphenol ethoxylates (NPEOs), which degrade to nonylphenol.

Chemical pulp refers to pulp produced using the sulphite or sulphate (Kraft) methods, where wood chips are cooked in pressurised vessels in the presence of bisulphite or sodium hydroxide liquor.

Coating means a substance added to the base paper to give it certain qualities.

COD (Chemical Oxygen Demand) means the mass concentration of oxygen equivalent to the amount of dichromate consumed by dissolved and suspended matter when a water sample is treated with the oxidant under defined conditions.

DIP means de-inked pulp or recycled pulp.

EDTA (ethylene diaminetetraacetic acid) is a complexing agent used to bind metals found in raw materials and in process water.

FSC refers to the Forest Stewardship Council.

GEN refers to the Global Ecolabelling Network.

ISO means International Organisation for Standardisation.

Label means the ECNZ Label.

Macerated products are products made from shredded paper, e.g. padded envelopes. Macerated paper is also used for insulation, but this is covered by a separate ECNZ specification (EC-25) as there are important installation and performance requirements for insulation.

Mechanical pulp refers to pulp produced by grinding wood. It may involve the use of steam or chemicals to soften the wood prior to grinding. It includes stone groundwood, thermo-mechanical pulp (TMP) and chemi-thermomechanical pulp (CTMP).

Mulch mat is a type of weed matting. It is used in flower beds to suppress the growth of weeds, and is commonly made from low-grade recycled paper.

NO_x is a joint chemical abbreviation for nitrogen oxides (NO, N₂O and NO₂). In this document NO_x means total NO and NO₂ measured as NO₂ equivalents.

P is the atomic symbol for phosphorus. In this document P refers to phosphorus discharged to water.

PEFC refers to the Programme for the Endorsement of Forest Certification.

PCB refers to Polychlorinated Biphenyls.

PCP refers to Pentachlorophenol.

Post-consumer refers to material generated by households, or by commercial, industrial and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.

Pre-consumer refers to material diverted from the waste stream during a manufacturing process. Excluded is re-utilisation of materials such as rework, or scrap generated in a process and capable of being reclaimed within the same process that generated it.

Pulp furnish refers to the water-suspended mixture of paper pulp and non-fibrous additives such as fillers, dyes, or sizing from which paper or paperboard is made.

Readily biodegradable surfactants are those where the average level of biodegradation observed in an aerobic sewage treatment plant is at least 90 % during a residence time of not more than 3 hours. In order to meet this requirement the surfactant must either meet the requirement for “readily biodegradable” when determined using one of the five test methods described in the Organisation for Economic Co-operation and Development (OECD) Guidelines for Testing of Chemicals, Test Guidelines 301A-301E OR achieve a biodegradability of at least 80 % when tested by the OECD method, published in the OECD technical report 11 June 1976 on the “Proposed Method for the Determination of the Biodegradability of Surfactants used in Synthetic Detergents”, or as listed in the Danish Environmental Protection Agency report “Environmental Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products” (2001), or an equivalent test. The pass level of 80 % recognises the inherent experimental variability of the OECD test.

Recycled content refers to post-consumer or pre-consumer material. Purchased broke, and broke generated within the mill is defined as new fibre if the fibre raw material is new fibre, and as recycled fibre if the raw material is recycled fibre.

Renewable energy sources mean renewable non-fossil energy sources, e.g. wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogas.

S is the atomic symbol for sulphur. In this document it means gaseous emissions of sulphur to the atmosphere, such as sulphur dioxide and reduced sulphur compounds.

SFM means a Sustainable Forest Management certification scheme.

Ultimately biodegradable means in accordance with the OECD Test Guidelines 302A-302C.

4 Category definition

This category includes the following paper products:

- 4.1 Sanitary paper products including toilet paper; facial tissue; paper towels and table napkins;
- 4.2 Office paper products including copier/printing paper and writing paper;
- 4.3 Stationery paper products including envelopes and exercise books;
- 4.4 Paper packaging, cardboard and paperboard products including boxes and cartons;
- 4.5 Moulded and macerated paper products (excluding insulation); and
- 4.6 Base paper used to manufacture any of the products above.

Thermal insulation made from paper is excluded from this category as it is addressed in EC-25 for Building Insulants.

To be licensed to use the Label, a Paper product must meet all environmental criteria set out in Clause 5 and product characteristics set out in Clause 6.

5 Environmental criteria

5.1 Legal requirements

Criteria

The licence applicant/holder must demonstrate how applicable environmental legal requirements are met, including that all necessary environmental consents and permits are in place.

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/licence holder. This statement shall be supported by current documentation:

- Identifying the applicable regulatory requirements including specific obligations arising from permits, regulations, and regulatory plan rules; and
- Demonstrating how compliance is monitored and maintained.

Verification of continued compliance with legal requirements will form part of the Licence Supervision Plan.

Explanatory notes

Relevant laws and regulations 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; and
- 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); and
- audit reports completed by independent and competent auditors addressing regulatory compliance (for example, reports for other eco-label licences or reports from regulator audits).

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 Product information required

Criteria

- a The pulp used for the paper product must be one or more of the raw materials in Clauses 5.4.1- 5.4.4 (e.g. wood, bamboo, other plant-fibres or minerals). No other pulps can be used.
- b Licence applicants/holders must provide the following information to the Trust as part of the assessment process:
 - i information about the fibres/raw materials used and % by weight of the finished product (see Table A1 in Appendix A);
 - ii supply chain information including material type, suppliers and geographical origin (see Table A2 in Appendix A);
 - iii additives and hazardous substances used in the production of the product (see Table A3 in Appendix A); and
 - iv information about the pulps used (see Table E1 in Appendix E).Licence holders must maintain and update this information if it changes.

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/licence holder. The statement shall be supported by completed Tables A1-3 and E1.

5.3 Environmental management system or processes

Criteria

- a To demonstrate its ability to ensure ongoing compliance with the requirements of this EC-60 specification, the ECNZ licence applicant/holder must have (or establish, if necessary) appropriate management processes or a management system, to obtain, record, verify and maintain relevant information to provide assurance that it consistently meets all of the relevant requirements of EC-60.
- b The paper manufacturing facility must have an ISO 14001-certified Environmental Management System (EMS), or equivalent certification, that includes the paper used for the ECNZ-licensed products.

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/licence holder. The statement shall be supported by:

- details of the management processes or environmental management system used to maintain and ensure ongoing compliance with EC-60. Examples could include information from the organisation's FSC or PEFC chain-of-custody control system, and evidence to show EC-60 is included in the compliance obligations register/document of the EMS; and
- a copy of the ISO 14001, or equivalent, certificate for the paper manufacturing.

Notes

For 5.3 a)

The information may come from existing processes such as the organisation's FSC or PEFC chain-of-custody control system, or from an established Environmental Management System (e.g. controls for procurement of hazardous substances, or emissions information).

ECNZ supervision verifications between 2019-2021 for products licensed under EC-13 or EC-26 have included checking the types of management process required by Clause 5.3 a). If there are no changes to those processes, significant new information will not be required from those licence holders in order to demonstrate compliance with Clause 5.3 a).

For 5.3 b)

Examples of certifications that will be considered equivalent to ISO 14001 certification:

- Enviromark Diamond.
- European Commission's EMAS scheme.

Equivalency of other certifications will be determined by the Trust on a case-by-case basis.

The following are some examples that will not be considered equivalent to ISO 14001 certification:

- Other Enviromark certifications (Bronze, Gold).
- Environmental management system based on ISO 14001 that have not be independently audited and certified.
- EPDs, ISO 9001 or any other certifications that are not an environmental management system certification.

5.4 Raw material source

The requirements in Clause 5.4 apply to the raw materials used. They do not apply to coating or other additives as these are addressed in Clause 5.5.

5.4.1 Wood-based fibre

5.4.1.1 Packaging and paperboard products 🌍 👤

Criteria

- a The minimum recycled content in the fibre for each sub-category of packaging and paperboard product shall be as follows:

Product Type	Recycled Content (%)	Post-consumer Recycled (%)
Mulch Mat	85	70
Macerated products	100 20 for liner	80 10 for liner
Moulded products	100	75
Paperboard	No minimum	No minimum

- b If the furnish contains fibre from native forests, the forest sources used must have current Sustainable Forest Management (SFM) certification.

Please see the notes in Appendix B for details of accepted SFM certifications.

Fibre includes that from harvested trees and that derived from waste wood, sawdust or wood chips.

- c If the furnish contains fibre from plantation forests, the plantations used must have current legal harvesting certification.

Please see the notes in Appendix B for details of accepted legal harvesting certifications.

Fibre includes that from harvested trees and that derived from waste wood, sawdust or wood chips.

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/licence holder. This statement shall be supported by appropriate documentation (as relevant):

- demonstrating the proportion of fibre types included in each pulp furnish;
- for recycled fibre, demonstrating whether the fibre is pre or post-consumer, and that the minimum recycled content in part a) has been met;
- recordings of the supplier, nature (native forest or plantation) and geographical source of all virgin fibre inputs;
- certificates or other evidence (for example invoices or packing slips) showing FSC or PEFC claims about forest management certification and chain of custody (to confirm the virgin fibre from native forests is from a certified sustainably managed source, and virgin fibre from plantations is from legally harvested sources).

Notes

Clause 5.4.1.1 requires details of forest management certifications, chain-of-custody certifications, and physical controls for SFM certified fibre through the supply chain from the forest to the paper mill. Clause 5.4.1.1 does not require that the finished product carry a FSC or PEFC (or equivalent) label, nor does it require any information about FSC or PEFC credits generated in the supply chain or assigned to the finished products.

Please see Appendix B for additional notes.

5.4.1.2 Other paper products (including sanitary paper and office paper products) 🌍 👤

Criteria

- a **Recycled Content:** If the pulp furnish contains recycled content, at least 50 % of the recycled fibre must be post-consumer recycled.
- b **Virgin fibre from native forests:** If the pulp furnish contains fibre from native forests, the forest sources used must have current Sustainable Forest Management (SFM) certification.

Please see the notes in Appendix B for details of accepted SFM certifications.

Fibre includes that from harvested trees and that derived from waste wood, sawdust or wood chips.

- c **Virgin fibre from plantations:** If the pulp furnish contains fibre from plantation forests:
- i the plantations used must be legally harvested, AND

- ii a total of at least 70 % of the fibre in the pulp furnish must be from sources that have current SFM certification. This 70 % may include any fibre from native forests that meets b) above.

Please see the notes in Appendix B for details of accepted evidence of legal harvesting and SFM certifications.

Fibre includes that from harvested trees and that derived from waste wood, sawdust or wood chips.

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/licence holder. This statement shall be supported by appropriate documentation (as relevant):

- demonstrating the proportion of fibre types included in each pulp furnish;
- for recycled fibre, demonstrating whether the fibre is pre or post-consumer;
- recordings of the supplier, nature (native forest or plantation) and geographical source of all virgin fibre inputs;
- certificates or other evidence (for example invoices or packing slips) showing FSC or PEFC claims, on forest management certification and chain of custody (to confirm the virgin fibre from native forests is from a certified sustainably managed source, and virgin fibre from plantations is from legally harvested sources);
- a calculation, spreadsheet or other evidence to demonstrate that a minimum of 70 % of the virgin fibre in the pulp furnish is from SFM, if required.

Notes

Clause 5.4.1.2 requires details of forest management certifications, chain-of-custody certifications, and physical controls for SFM certified fibre through the supply chain from the forest to the paper mill. Clause 5.4.1.2 does not require that the finished product carry a FSC or PEFC (or equivalent) label, nor does it require any information about FSC or PEFC credits generated in the supply chain or assigned to the finished products.

Please see Appendix B for additional notes.

5.4.2 Bamboo 🌍 👤

Criteria

- a A minimum of 50 % by weight of the bamboo in the paper product must be from plantations or forests certified as SFM under the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification schemes (PEFC), or equivalent schemes.
- b The ECNZ licence applicant/holder must ensure that all uncertified bamboo comes from legal sources. Bamboo raw material must not be derived from:
 - i protected areas, or areas that are under investigation as to their protection status;
 - ii areas where ownership or rights of exploitation are unclear; or
 - iii illegally harvested fibre.

In addition, the bamboo management must not harm:

- iv natural woodland, biodiversity, special ecosystems and important ecological functions;
or
- v social and cultural preservation values.
- c Bamboo fibre must not come from bamboo species that appear on the Convention on International Trade in Endangered Species (CITES) list.
- d Companies must:
 - i maintain records of the certification of bamboo fibre used in licensed products; and
 - ii have, implement and report on an ongoing programme to review options and increase FSC or PEFC or equivalent SFM-certified content in ECNZ licensed products.

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/licence holder. The statement shall be supported by appropriate documentation (as relevant):

- recording the supplier, nature and geographical source of all bamboo inputs to the paper product;
- including certificates or other evidence on forest management, SFM certification and chain of custody;
- describing management processes or management systems in place to ensure that these requirements are consistently met;
- describing the programme to review options and increase FSC or PEFC or equivalent SFM-certified bamboo content in ECNZ licensed products; and
- annual reports to ECNZ on this procurement programme.

Notes

The Trust intends to monitor levels of bamboo certification with the expectation that the minimum percentage requirements will be increased when higher levels are attainable.

Please see Appendix C for additional notes.

5.4.3 Other plant sourced fibre 🌍 🧑🏻

These criteria apply to hemp, kenaf, flax, cotton, linen and waste left over from harvesting an existing agricultural crop (e.g. wheat straw, rice straw, seed flax straw, sorghum stalks, corn stalks, sugar cane bagasse, and rye seed grass straw).

Wood fibre and bamboo are excluded from these criteria as they are addressed in Clauses 5.4.1 and 5.4.2, respectively.

Criteria

The ECNZ licence applicant/holder shall:

- a have management processes to ensure the traceability of all fibre raw materials;
- b have a documented procedure regarding procurement of sustainable fibre raw material;
- c ensure that all fibre raw materials come from legal sources; and
- d ensure fibre raw material is not derived from:
 - i protected areas, or areas that are under investigation as to their protection status;

- ii areas where ownership or rights of exploitation are unclear; or
- iii illegally harvested fibre.

In addition, the fibre management must not harm:

- iv natural woodland, biodiversity, special ecosystems and important ecological functions;
and
- v social and cultural preservation values.

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/licence holder. The statement shall be supported by documentation (as relevant):

- management processes or traceability system for all fibre raw materials, e.g. a Chain of Custody certificate;
- a documented procedure from the ECNZ licence applicant/holder that describes sustainable procurement of all fibre used; and
- certification, harvesting permits or other information to demonstrate that the fibre is legally harvested and does not come from protected areas or areas where ownership rights are in dispute.

5.4.4 Minerals and mined materials

The criteria below apply to all materials extracted from the ground which are used as the base substrate, including materials which are the main focus of the mine operation, by-products, or mining wastes. They do not apply to coatings or other additives as these are addressed in Clause 5.5.

Criteria

- a Mined materials must come from mining operations with documented mine remediation programmes;
- b The applicant/licensee must ensure that virgin raw materials do not come from environments that are protected for biological and/or social reasons;
- c Mines from which materials are obtained for an ECNZ licensed paper product must have, and implement, management plans including any policies and management procedures to minimise adverse effects from the following potential impacts:
 - i. noise;
 - ii. vibration;
 - iii. dust; and
 - iv. discharges to surface water, groundwater, oceans or land.

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/licence holder. This statement shall be supported by documentation (as relevant):

- information about the procurement programme for mined materials and records of the supplier, nature and geographical source of all mineral inputs;

- certificates or other evidence of a documented mine remediation programme;
- description of the raw material procurement management systems in place to ensure that the requirement in a) and b) are consistently met;
- copies of the relevant management plans required by c); and
- records demonstrating the management plans are being effectively implemented (including monitoring results).

5.5 Hazardous substances

5.5.1 General hazardous substances

Criteria

- Substances that have classifications of acute toxicity, environmental hazard, carcinogenicity, mutagenicity or reproductive toxicity in accordance with Table D1 (Appendix D) shall not be added to the paper product or used during the production process; and
- Any additives intended to be present in the finished product must not have a classification of respiratory or skin sensitisation in accordance with Table D1 (Appendix D).
 - For sanitary paper products, this may include dyes, softeners, lotions or fragrance.
 - For other paper products, this may include dyes, surface finishing agents and coating materials.

The following are exempt from these requirements:

Inorganic chemicals	Chemicals that are 100 % inorganic (e.g. NaOH, NaClO)
Biocides	Exempt from the ban on ecotoxic substances only (Additional requirements for biocides are in Clause 5.5.6)
Foam inhibitors	Exempt from the ban on ecotoxic substances only (Additional requirements for foam inhibitors are in Clause 5.5.4)
Softeners	Exempt from the ban on ecotoxic substances only
Wet strength agents	Containing chloro-organic substances epichlorohydrin (ECH), 1,3-dichloro-2-propanol (DCP) and 3-monochloro-1,2-propanediol (MCPD) are exempt (Additional requirements for wet strength agents are in Clause 5.5.7)
Peracetic acid (bleaching agent)	Exempt
Cationic polymers and dyes	Exempt from the ban on ecotoxic substances, if the classification is due to the cationic charge
Low use chemicals	Chemicals whose consumption is less than 0.05 kg/tonne pulp produced (0.005 %) at the pulp mill or per paper produced at the paper mill are exempt
Titanium dioxide	TiO ₂ is exempt from the restriction on carcinogenic substances if its classification only applies to the inhalable powder.

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/licence holder. This statement shall be supported by documentation (as relevant):

- identifying hazardous substances used in materials and production processes (including CAS numbers and Safety Data Sheets (SDS), where available);
- identifying the hazard classifications that apply to these substances;
- compliance with a) may be demonstrated by providing data indicating that the substance does not have any of the classifications (or combinations thereof) listed in Table D1 (Appendix D) for toxins, ecotoxins, carcinogens, mutagens and reproductive toxins; and
- compliance with b) may be demonstrated by providing data indicating that the substance does not have any of the classifications (or combinations thereof) listed in Table D1 (Appendix D) for respiratory or skin sensitisers.

Notes

The requirements above apply to all production chemicals (but not constituent substances), except where specifically exempt.

Production chemicals include:

- chemical additives - used to give paper certain characteristics or qualities and usually retained by cellulose fibres;
- auxiliary chemicals – used to increase efficiency and simplify production processes and often released into waste water; and
- process chemicals – used to maintain pulp and paper production equipment.

The criteria in part a) above ban the use of Bisphenol A (BPA) as it is classified as a reproductive toxin in New Zealand, therefore, BPA cannot be included in ECNZ-licensed paper products.

5.5.2 Bleaches and complexing agents

Criteria

- Paperboard or packaging products shall not be bleached;
- For all other products, chlorine gas may not be used as a bleaching agent. This requirement does not apply to chlorine gas related to the production and use of chlorine dioxide; and
- Ethylenediamine tetraacetic acid (EDTA) may not be used.

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/licence holder. This statement shall be supported by relevant production and quality control documentation.

Notes

It is accepted that recycled fibres may have been bleached with chlorine gas during their previous lifecycle.

Elemental chlorine bleaching is prohibited by Clause 5.5.2 b).

5.5.3 Dyes, pigments and coatings added to the products

Criteria

- a No dyes, pigments or coatings shall be used that contain phthalates, mercury, lead, copper, chromium, nickel, aluminium or cadmium as constituent parts. Copper phthalocyanine dyes or pigments may, however, be used;
- b The levels of ionic impurities in the dyes and pigments used shall not exceed the following: Ag 100 ppm; As 50 ppm; Ba 100 ppm; Cd 20 ppm; Co 500 ppm; Cr 100 ppm; Cu 250 ppm; Fe 2,500 ppm; Hg 4 ppm; Mn 1,000 ppm; Ni 200 ppm; Pb 100 ppm; Se 20 ppm; Sb 50 ppm; Zn 1,500 ppm;
- c Acrylamide monomer must not be present as a constituent part of coatings; and
- d Azo dyes or pigments which may release one of the amines listed in the table below must not be used.

Amine	CAS-number
4-amino-biphenyl	92-67-1
Benzidine	92-87-5
4-chloro-toluidine	95-69-2
2-naphtylamine	91-59-8
o-aminoazo-toluene	97-56-3
2-amino-4-nitro-toluene	99-55-8
p-chloroaniline	106-47-8
2,4-diamino-anisol	615-05-4
4,4'-diamino-diphenylmethane	101-77-9
3,3'-dichlorobenzidine	91-94-1
3,3'-dimethoxybenzidine	119-90-4
3,3'-dimethylbenzidine	119-93-7
3,3'-dimethyl-4,4'-diamino-diphenylmethane	838-88-0
p-cresidine	120-71-8
4,4'-methylenebis(2-chloroaniline)	101-14-4
4,4'-oxydianiline	101-80-4
4,4'-thiodianiline	139-65-1
o-toluidine	95-53-4
2,4-toluidenediamine	95-80-7
2,4,5-trimethylaniline	137-17-7
o-anisidinedimethoxyaniline	90-04-0
2,4-xylidine	95-68-1
4,6 – xylidine	87-62-7
4-animoazobenzene	60-09-3

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/licence holder. This statement shall be supported by documentation (as relevant):

- identifying the dyes, pigments and coatings used;
- SDS (safety data sheets) or other information to demonstrate the level of impurities in dyes and pigments; and
- demonstrating that no acrylamide monomer is used.

5.5.4 Surfactants and foam inhibitors 🌍 👤

These criteria apply to foam inhibitors or surfactants that are released in the wastewater from the production site. Foam inhibitors/defoamers and surfactants based on silicone derivatives that are destroyed in chemical recycling processes are exempted from these requirements.

Criteria

- Alkylphenol ethoxylates (APEOs) or other alkylphenol derivatives must not be deliberately added to de-inking surfactants or to foam inhibitors;
- Where surfactants are used for de-inking recycled paper input, these surfactants shall be readily biodegradable; and
- Foam inhibitors used in manufacturing processes must meet either (i) or (ii) below:
 - not be assigned at the time of assessment any of the ecotoxicity classifications in Table D1 (Appendix D); or
 - 95 % by weight of the constituent substances that have a foam inhibiting or retarding effect must be either readily or ultimately biodegradable.

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/licence holder. This statement shall be supported by documentation (as relevant):

- confirming APEOs or other alkylphenol derivatives have not been deliberately added to any surfactants or foam inhibitors used;
- identifying any surfactants or foam inhibitors used;
- SDS (safety data sheets); and
- test reports provided by laboratories competent to perform the relevant tests.

Test methods shall be those nominated below or equivalents. If an equivalent method is to be used, The Trust may require details of the method and its validation.

Test methods

The surfactant must either meet the requirement for “readily biodegradable” when determined using one of the five methods described in the OECD Guidelines for testing of chemicals, Test Guidelines 301A-301E or achieve a biodegradability of at least 80 % when tested by OECD method published in the OECD technical paper report of 11 June 1976, or as listed in the Danish Environmental Protection Agency report “Environmental Health Assessment of Substances in Household Detergents and Cosmetic Detergent Products” (2001), or equivalent test. Alternatively, the foam inhibitor may meet the requirement for ultimate biodegradability in accordance with the OECD Test Guidelines 302A-302C.

5.5.5 Cleaning solvents

Criteria

Solvents used in the cleaning of production/manufacturing equipment must not contain halogenated hydrocarbons, alkylphenol ethoxylates (APEOs) or other alkylphenol derivatives as constituent parts.

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/licence holder. This statement shall be supported by documentation (as relevant):

- identifying the cleaning solvents used; and
- SDS (safety data sheets) for each cleaning solvent used.

5.5.6 Biocides

Criteria

The active components in biocides or biostatic agents used to counter slime-forming in pulp and paper production shall not bioaccumulate or be potentially bio-accumulative.

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/licence holder. This statement shall be supported by documentation (as relevant):

- identifying the biocides used;
- provides SDS (safety data sheets) which show that the biocide is not bioaccumulative or potentially bioaccumulative. A substance is considered to be potentially bioaccumulative if the Log Kow (log octanol/water partition coefficient) ≥ 3.0 (unless the experimentally determined BCF) ≤ 100 ; and
- test reports for bioaccumulability of biocides or biostatic agents and/or data sheets in accordance with European Union Directive 91/155/EEC, or equivalent standard, with sufficient data and references to test methods.

5.5.7 Wet strength agents

Criteria

Wet strength agents must not contain more than 7,000 ppm (0.7 %) of the chloro-organic substances epichlorohydrin (ECH), 1,3- dichloro-2-propanol (DCP) and 3-monochloro-1,2-propanediol (MCPD), calculated as the sum of the three components and related to the dry content of the wet strength agent.

The above limit includes free ECH, DCP and MCPD only and does not include epichlorohydrin polymer.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant

company/licence holder. This statement shall be supported by information (including SDS) on the wet-strength agents used and production information to demonstrate that the limit is being met.

5.5.8 Adhesives and glues 🌍 👤

Criteria

- a Envelopes: adhesives must not be classified as harmful to health, corrosive, irritant, sensitising, explosive, oxidizing, or flammable in accordance with Table D2 (Appendix D).
- b Paper mulch mat: only polyvinyl acetate polymer or similar inherently biodegradable glues may be used during manufacturing.
- c Sanitary paper products: tissue or towel laminating glue, tissue or towel tail glue, core pick-up glue, and core wind-up glue must all be classified as non-hazardous.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported by information (including SDS) on the adhesives used and relevant production and quality control documentation.

5.6 Process emissions

5.6.1 Emissions of carbon dioxide (CO₂) from fossil fuels 🌍

Criteria

Emissions shall be calculated as the sum of the emissions from the pulp and paper production. The combined (pulp and paper) emissions of CO₂ from fossil fuels (apportioned to the product being licensed) shall not exceed:

- De-Inked Pulp (DIP)/recycled paper: 1,000 kg of CO₂ per tonne of paper produced.
- Sanitary paper: 1,200 kg of CO₂ per tonne of paper by June 2022.
1,000 kg CO₂ per tonne of paper by June 2023.
- Other Chemical pulp paper: 900 kg of CO₂ per tonne of paper produced.
- Mechanical pulp paper: 1,500 kg of CO₂ per tonne of paper produced.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported by documentation that includes:

- test reports;
- calculations or emissions inventories; and
- production and quality control information.

Test reports must be from laboratories competent to perform the relevant tests. If an equivalent method is to be used, The Trust may require details of the method and its validation.

Notes

- The above limits include emissions from purchased electricity and use of fossil fuels, but exclude emissions from renewable sources. Renewable energy sources means renewable non-

fossil energy sources, e.g. wind, solar, geothermal, wave, tidal, hydropower, biomass, landfill gas, sewage treatment plant gas and biogas.

- For paper comprising a mixture of recycled, chemical and mechanical pulp, a weighted limit should be calculated, based on the proportion of each pulp type used. The total pulp emissions from the pulps should then be added to that from the paper making.
- For recycled fibre sources, emissions arising from the original production of recycled paper shall not be included in the calculations.
- CO₂ from surplus energy at the manufacturing site sold as electricity, steam or heat may be subtracted from the total CO₂ emissions.
- The amount of energy from renewable sources, purchased and used for the production processes, shall not be included in the calculation.
- The energy used for converting the paper into a product and transport in distributing this product, pulps or other raw materials shall not be included in the calculations.

5.6.2 Emissions of adsorbable organic halides (AOX)

This criterion relates to paper made from elemental chlorine free (ECF) pulp.

Criteria

The weighted average value of AOX released from pulps used must not exceed:

- a 0.17 kg per tonne of paper produced; and
- b 0.25 kg per tonne for each individual pulp.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported by documentation that includes:

- test reports;
- calculations; and
- production and quality control information.

Test reports must be from laboratories competent to perform the relevant tests. If an equivalent method is to be used, the Trust may require details of the method and its validation.

Notes

The requirements for AOX are not applicable to processes which do not use chlorine for bleaching the pulp.

Test method

AOX ISO 9562, or an equivalent test method, should be used.

5.6.3 Other emissions to air and water

Criteria

This Clause covers the following emissions:

- discharges to air of sulphur (S) and nitrogen oxides (NO_x); and
- discharges to water of Chemical Oxygen Demand (COD) and phosphorus (P).

The emissions to air and/or water from the pulp and paper production shall be expressed in terms of points (P_{COD} , P_S , P_P , P_{NOx}), according to the following:

- a $P_{\text{total}} = P_{\text{COD}} + P_S + P_P + P_{\text{NOx}}$ must not exceed 4.0; and
- b The individual point scores for P_{COD} , P_S , P_P , P_{NOx} must not exceed 1.5.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported by documentation that includes:

- test reports;
- calculations; and
- production and quality control information.

Test reports must be from laboratories competent to perform the relevant tests. If an equivalent method is to be used, The Trust may require details of the method and its validation.

Notes

Emissions should be calculated in accordance with the example below for COD.

- For each pulp “i” used, the measured COD emissions ($\text{COD}_{\text{pulp},i}$) should be multiplied by the proportion of pulp in the pulp furnish (pulpi , in ADt of pulp), and added together with the results for the other pulps. The total emissions for the pulps should then be added to the measured emissions from the paper production ($\text{COD}_{\text{papermachine}}$) to give a total COD emission ($\text{COD}_{\text{total}}$).
- The proportional COD reference value for each pulp should be calculated in the same manner, and added together with the reference value for the paper production to give a total COD reference value ($\text{COD}_{\text{ref total}}$).
- The total COD emissions should then be divided by the total COD reference value as follows:

$$P_{\text{COD}} = \frac{\text{COD}_{\text{total}}}{\text{COD}_{\text{ref total}}} = \frac{\sum_{i=1}^n (\text{pulpi} \times \text{COD}_{\text{pulp},i}) + \text{COD}_{\text{papermachine}}}{\sum_{i=1}^n (\text{pulpi} \times \text{COD}_{\text{ref pulp},i}) + \text{COD}_{\text{ref papermachine}}}$$

Pulp type (pulpi) or paper	Emissions (kg/ADt)			
	COD_{ref}	S_{ref}	$\text{NO}_{\text{x ref}}$	P_{ref}
Bleached chemical pulp (sulphate (Kraft) and other pulps)	18.0	0.6	1.6	0.045*
Bleached chemical pulp (sulphite)	25.0	0.6	1.6	0.045
Unbleached chemical pulp	10.0	0.6	1.6	0.04
CTMP	15.0	0.2	0.3	0.01
TMP/groundwood	3.0	0.2	0.3	0.01
DIP/recycled fibre	2.0	0.2	0.3	0.01
Tissue paper	2.0	0.3	0.5	0.01

* Exemption from this level, up to a level of 0.1 shall be given were it can be demonstrated that the higher level of P is due to P naturally occurring in the wood pulp, e.g. eucalyptus.

- Emissions from the pulp and paper mills should be apportioned to the pulp/paper included in the ECNZ-licensed products before they are included in the equation above.

- Emissions from surplus energy that is sold on in the form of electricity, steam or heat, can be subtracted from the total emissions for S and NO_x.
- In the case of co-generation of heat and electricity at the same plant, emissions of S and NO_x from electricity generation can be deducted from the total emissions in order to avoid double counting. The following equation can be used to calculate the share of emissions from the electricity generation:

$$\frac{2 \times MWh_{electricity}}{(2 \times MWh_{electricity}) + MWh_{heat}}$$

Where “electricity” and “heat” are the net values delivered from the power plant to the pulp/paper production, and do not include the working electricity/heat used at the power plant to generate the energy.

- Emissions should be measured as kg/tonne 90 % pulp, as ADt pulp usually contains 90 % solids and 10 % water.

Results should be reported as:

- COD: kg O₂/tonne 90 % pulp or paper;
 - P: kg P/tonne 90 % pulp or paper;
 - S: kg S/tonne 90 % pulp or paper; and
 - NO_x: kg NO₂/tonne 90 % pulp or paper.
- If a pulp or paper mill does not currently monitor phosphorus emissions, the ECNZ verifier may request additional information in order to determine if phosphorus is a significant pollutant from that mill, before requesting that the mill sample and test effluent for phosphorus. This information may include:
 - SDS for chemicals used in the mill which contain phosphorus (e.g. defoamers, water conditioners, scale inhibitors and complexing agents).
 - details of effluent treatment (by the mill or local authority) and whether or not it includes treatment to reduce phosphorus, e.g. activated sludge treatment.
 - a description of the receiving environment that the mill or wastewater treatment facility discharges to.
 - details of any permits held by the mill, or regional or national legislation, which include controls for emissions of phosphorus to water.

Test Methods

The following test methods, or equivalents, should be used:

- for COD – ISO 6060 2nd ed. 1989;
- for P – EN ISO 6878;
- for S(oxid) – EPA no. 8, S(red.) – EPA no. 16A. The S emissions related to the heat energy generation from oil, coal and other external fuels with known S content may be calculated instead of measured; and
- For NO_x – ISO 11564.

5.7 Energy management

Criteria

- a The paper manufacturer, paper convertor and licence applicant/holder must have effective energy management policies and procedures and/or an energy management programme.
- b Licence holders must report annually to the Trust on their energy management, this should include:
 - i total energy use;
 - ii breakdown of total energy use to types of energy used;
 - iii energy use related to production;
 - iv initiatives taken to reduce energy use and improve energy efficiency; and
 - v initiatives taken to calculate and reduce CO₂ emissions associated with energy use.
- c Licence holders must have improvement objectives and targets for reduction of energy use related to production of ECNZ-licensed products, and associated CO₂ emissions, over time. Any divergence from objectives or targets should be explained in the annual report.

The annual report shall also include information on energy management during pulp and paper production where that information is available from the pulp or paper manufacturers.

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/licence holder. This statement shall be supported by documentation (as relevant):

- describing the energy management policies, procedures and programmes;
- including annual reports to the Trust on energy use and management; and
- detailing performance against improvement objectives and targets relating to the reduction of energy use related to production of ECNZ-licensed products, and associated CO₂ emissions, over time.

5.8 Water management

Criteria

- a The paper manufacturer, paper convertor and licence applicant/holder must have effective water management policies and procedures and/or a water management programme.
- b Licence holders must report annually to the Trust on water management during the paper making process, this should include:
 - i objectives and targets;
 - ii explanation for any divergence from objectives and targets; and
 - iii initiatives taken to manage fresh water use better and improve water efficiency.

The annual report shall also include information on water management during pulp production where that information is available from the pulp manufacturers.

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/licence holder. This statement shall be supported by documentation (as relevant):

- describing the water management policies, procedures and programmes;
- including annual reports to the Trust on water use and management; and
- detailing performance against continuous improvement objectives and targets relating to the reduction of water use related to production over time.

5.9 Packaging requirements

Criteria

- Primary packaging, including copy paper ream wrappers, must be able to be recycled in New Zealand (or the country to which the product is exported and sold).
- Packaging must not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent recycling (i.e. PVC sleeves, metallic labels).
- Information shall be provided to The Trust within the application and thereafter reported annually on PVC and/or phthalates used in the packaging. This should include information from production records and/or suppliers on:
 - the percentages by weight of recycled and virgin PVC;
 - the particular production processes (membrane cells, non asbestos diaphragms, modified diaphragms, graphite anodes, mercury cells, closed-lid production etc) used to produce chlorine and Vinyl Chloride Monomer (VCM) for the PVC being used in the packaging for ECNZ-licensed products (including the locations of the production);
 - information, where available, on waste disposal, wastewater treatment and emissions to air (occupational exposure, emissions from the factory and emissions from the final PVC resin);
 - information on any Environmental Management System for the production process, including requirements for waste, water, air and product-related requirements;
 - the types of stabilisers used;
 - the types and amounts of any phthalate plasticisers present in recycled content of the PVC (if that information is available) and/or added when manufacturing PVC;
 - research and initiatives implemented on substitutes for phthalates identified as of concern by regulators; and
 - any product stewardship arrangements for the packaging.

Note: Regulators have identified the following phthalates to be of concern – dibutyl phthalate (DBP), diisobutyl phthalate (DIBP), butyl benzyl phthalate (BBP), di-n-pentyl phthalate (DnPP), di(2-ethylhexyl) phthalate (DEHP), di-n-octyl phthalate (DnOP), diisononyl phthalate (DINP) and diisodecyl phthalate (DIDP).

- Primary cardboard packaging, including cores of paper towels or tissues products, shall consist of any combination of:
 - recycled content;

AND/OR

- waste wood or virgin fibre from native forests that are certified under the Forest Stewardship Council (FSC) or the Programme for the Endorsement of Forest Certification (PEFC) as sustainably managed (or equivalent certification);

Please see the notes in Appendix B for details of accepted SFM certifications.

AND/OR

- iii waste wood or virgin fibre from plantations (including farm forests or woodlots) which have been legally harvested.

Please see the notes in Appendix B for details of accepted evidence of legal harvesting.

Verification required

Conformance with these criteria shall be stated in writing and signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported with the following documentation and evidence:

- conformance with criteria (a) shall be supported by documentation verifying the packaging is recyclable;
- conformance with criteria (b) shall be demonstrated by providing samples or descriptions of all plastic packaging, and information on its constituent parts and recyclability;
- conformance with criteria (c) shall be demonstrated by providing initial and ongoing annual reports to the Trust on PVC and plasticisers used. This should include as much of the available information requested in (c) as possible; and
- conformance with criteria (d) shall be supported by documentation from the packaging manufacturer verifying the source of all fibre in the cardboard packaging or providing evidence that the packaging is covered by an Environmental Choice New Zealand licence.

5.10 Waste management

Criteria

- a The paper manufacturer, paper convertor and licence applicant/holder must have effective waste management policies and procedures and/or a waste management programme.
- b Licence holders must report annually to the Trust on their waste management, and this should include:
 - i quantities and types of waste recovered for reuse internally and externally;
 - ii quantities and types of waste recycled internally and externally;
 - iii quantities and types of waste disposed of to landfill;
 - iv quantities and types of waste burned internally for energy recovery;
 - v waste generation related to production; and
 - vi initiatives taken to reduce waste generation and improve recovery/recycling of waste.
- c Licence holders must have improvement objectives and targets for reduction of waste generation, and the increase of reuse and recycling rates over time, where practical. Any divergence from objectives or targets should be explained in the annual report.

The annual report shall also include information on waste management during pulp and paper production, where that information is available from the pulp or paper manufacturers.

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/licence holder. This statement shall be supported by documentation (as relevant):

- describing the waste management policies, procedures and programmes;
- including annual reports to the Trust on waste generation, minimisation and management; and

- detailing the improvement objectives and targets relating to the reduction of waste generation and the increase of reuse and recycling rates.

5.11 Product stewardship (excluding sanitary paper products)

Criteria

- a The product must not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent recycling in New Zealand. This includes the adhesive used for envelopes.
- b Components of products which are reusable or recyclable must be able to be separated from other materials/components without the use of special tools or techniques.
- c The licence holder must confirm that appropriate recycling facilities are available nationwide in New Zealand or widely available in the country where the product is sold.
- d If the paper is made from a raw material other than wood-pulp or has a special coating or finish, easy to understand information must be provided to customers about how it should be recycled and recycling routes which must be avoided, especially if the product cannot be recycled via the traditional paper recycling stream.
- e For ECNZ-licensed packaging products, licence holders must report annually to the Trust on product stewardship, including:
 - i availability, feasibility, and involvement in product take back schemes;
 - ii initiatives taken to promote or implement take back schemes;
 - iii initiatives taken to make products more recyclable; and
 - iv initiatives or requirements for suppliers or contract manufacturers.

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/licence holder. This statement shall be accompanied by:

- documentation verifying that the product is recyclable;
- information about the availability of recycling facilities;
- information about appropriate recycling options for non-wood pulp products or products which special coatings or finishes; and
- for ECNZ-licensed packaging products: information that describes the product stewardship scheme, including initiatives, procedures and programmes; and an annual report on product stewardship.

6 Product characteristics

6.1 Fitness for purpose 🌍 👤

Criteria

- a The product shall be fit for its intended use and conform, as appropriate, to relevant product performance standards.
- b Clear information must be provided to customers where paper products are unsuitable for some conventional paper uses due to the alternative fibres/minerals they contain, special inks or coatings, or any other reason, e.g. paper which is not suitable for common printing techniques, or use in photocopiers.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported by documentation (as relevant):

- identifying the applicable standards and or consumer/customer requirements;
- demonstrating how compliance is monitored and maintained;
- demonstrating records of customer feedback and complaints; and
- demonstrating examples of information provided to customers about suitable or unsuitable uses of the paper product.

6.2 Product safety

6.2.1 Product safety for kitchen towels and napkins 👤

Criteria

The licence holder should demonstrate that each pulp furnish used for kitchen towels or napkins complies with the following:

- a Products made from recycled fibres or mixtures of recycled and virgin fibres shall not contain more than:
 - i Formaldehyde: 1 mg/dm²;
 - ii Glyoxal: 1.5 mg/dm²;
 - iii PCP: 0.15 mg/kg; and
 - iv PCB: 0.05 mg/kg.
- b If slimicides, dyes or optical brighteners are added to the kitchen towel or napkin product, it must meet the following requirements:
 - i Slimicides and antimicrobial substances: No growth retardance of micro-organisms; and
 - ii Dyes: No bleeding.
 - iii Optical brighteners: No bleeding

Testing is only required if slimicides, dyes or optical brighteners are added to the product.

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant

company/licence holder. This statement shall be supported by information, including test reports, to demonstrate that the limits are being met.

Notes

Initial testing should be completed for each pulp furnish. Additional testing should be completed if the character of the recycled content used changes, or if the types or quantities of slimicides or dyes used changes.

Test methods

The following test methods, or equivalents, should be used:

- Formaldehyde - EN 1541 Paper and board intended to come into contact with foodstuffs- Determination of formaldehyde in an aqueous extract.
- Glyoxal - DIN 54603 Testing of paper, paperboard and board - Determination of glyoxal content.
- PCP - ISO 15320 Pulp, paper and board - Determination of pentachlorophenol in an aqueous extract.
- PCB - ISO 15318 Pulp, paper and board - Determination of 7 specified polychlorinated biphenyls (PCB).
- Slimicides and antimicrobial substances - EN 1104 Paper and board intended to come into contact with foodstuffs- Determination of the transfer of antimicrobial constituents.
- Bleeding of dyes - EN 646 Paper and board intended to come into contact with foodstuffs - Determination of colour fastness of dyed paper and board. Level 4 is required, using the short procedure.
- Bleeding of optical brighteners - EN 648 Paper and board intended to come into contact with foodstuffs- Determination of fastness of fluorescent whitened paper and board. Level 4 is required, using the short procedure.

6.2.2 Product safety for mulch mat

Criteria

Metal content in paper mulch mat shall not exceed the following limits:

Contaminant	mg/kg (dry weight)
Copper	1.31
Chromium	1.54
Cadmium	0.012
Lead	1.56
Zinc	5.87

Verification required

Conformance with this requirement shall be demonstrated by providing a written statement on compliance, signed by the Chief Executive Officer or other authorised representative of the applicant company/licence holder. This statement shall be supported by test results for total metal content.

Test method

Total metal content shall be established at trace level, using Total Recoverable Digest USEPS 200.2 method or equivalent. If an equivalent method is used, The Trust may require details of the test method and its validation.

Explanation

The mulch mat is left in the soil and there is potential for any contaminants that may be in the product to be released or build up in the soil. Paper used to make the mulch mat is likely to be printed. Ink products used in New Zealand may contain low levels of copper. Ink products used overseas and which may be found on printed materials imported to New Zealand may contain chromium, cadmium, lead or zinc. Adverse effects on the environment are likely if levels of these materials exceed natural background levels in soils. The limit levels in this criterion have been set at 10 % of the arithmetic mean background levels for non-volcanic soils in the Auckland Region (reference: Background Concentrations of Inorganic Elements in Soils for the Auckland Region. Auckland Regional Council Technical Publication 153, October 2001 and reprinted April 2002, ISSN 1175 205X). The 10 % level has been set on the basis that more than 90 % of the mulch mass could be lost (e.g. by decomposition and transpiration) without a net increase in metal concentration in the soil.

7 Requirements and notes for licence holders

Monitoring compliance

Prior to granting a licence, The Trust will prepare a 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).

The monitoring plan will require the licence holder 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 ECNZ 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 'Paper products' and by the Licence Number e.g. 'Licence No 1234'.

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.

Appendix A: Product Description Tables

Table A1- Fibre/Raw Material Table

Please complete one table for each product type/range. Please use a second page if necessary.

Product description including name/number:							
Fibre/ raw material name (in English and Latin, where appropriate)	Weight in final product	Fibre/raw material as a % of finished product weight					
		Wood-based fibre (%)	Bamboo (%)	Agricultural waste/residue (%)	Minerals (%)	Other (please specify) (%)	Other (please specify) (%)
Total % by material type:							
Total %:							

Type of Chemical	EC-60 Clause	Trade Name	Chemical Name	Supplier	CAS Number	SDS		HSNO/GHS classification	% added by weight
						Issue date	Copy attached (✓)		
Wet strength agents	5.5.1								
	5.5.7								
Adhesives and glues	5.5.1								
	5.5.8								
Other chemicals and additives used in the production of the paper product.	5.5.1								

Appendix B: Notes for Clauses 5.4.1.1 and 5.4.2.1 (wood-based fibre) and 5.9 Packaging

Broke:

Broke is not considered recycled fibre/content, unless the raw material generating the broke is recycled fibre.

Legal harvesting:

The following will be accepted as sources of information to demonstrate legal harvesting, where certificates (where relevant) and chain of custody evidence is available for virgin fibre sources:

- Forest Stewardship Council – “Certified” or “Controlled Wood” (<https://fsc.org/en>);
- Programme for the Endorsement of Forest Certification (PEFC) - “Certified” or “Controlled Sources” (<http://www.pefc.org>);
- SGS Timber Legality & Traceability Verifications service (TLTV) Verification of Legal Compliance certification (TVTL-VLC) (<http://www.sgs.com/en/Public-Sector/Monitoring-Services/Timber-Traceability-and-Legality.aspx>);
- Rainforest Alliance SmartWood Verification of Legal Compliance (VLC) certification (<http://www.rainforest-alliance.org/forestry/verification/legal>);
- System Verifikasi Legalitas Kayu - Timber Legality Verification System (SVLK) certified, or SVLK/PHPL (Pengelolaan Hutan Produksi Lestari – Sustainable Production Forest Management) certified (<http://liu.dephut.go.id/>); and
- Sustainable Forest Management Plans (supported with Annual Logging Plans) that have been prepared and approved under the New Zealand Forests Act 1949 (amended in 1993).

Sustainable Forest Management (SFM):

The FSC and PEFC certification schemes each have a range of certificates/labels. Some of these allow for wood/fibre from certified sustainably managed plantations or forests to be mixed with non-certified wood/fibre. Under FSC Mixed Credit or PEFC Volume Credit methods, wood/fibre or products associated with the certification claim or label may or may not actually contain wood/fibre from the certified sustainably managed source. Certifications accepted by The Trust are those which will ensure that the required minimum percentages of wood from sustainably managed forests, as required by Clause 5.4.1.1 or 5.4.1.2, will be actually present in the final ECNZ-licensed product. These are set out below.

Types of FSC claims on invoices or packing slips which can be used to demonstrate compliance with the SFM requirements:

- FSC 100 %;
- FSC Mix X % - Transfer or Percentage system (rolling average or batch);
- FSC Mix Credit – only if the manufacturer can demonstrate that fibre from SFM is actually present in the ECNZ products; and
- FSC Recycled – provided it contains 100 % recycled material.

FSC Controlled Wood does not demonstrate SFM.

Types of PEFC claims on invoices or packing slips which can be used to demonstrate compliance with the SFM requirements:

- PEFC Certified – Physical Separation method;
- X % PEFC Certified – Average Percentage method; and
- X % PEFC Certified – Volume Credit method – only if the manufacturer can demonstrate that fibre from SFM is actually present in the ECNZ products.

PEFC Controlled Sources does not demonstrate SFM.

The following certification schemes will be accepted as equivalent to FSC or PEFC certification of SFM:

- Pengelolaan Hutan Produksi Lestari – Sustainable Production Forest Management certified (PHPL) (<http://liu.dephut.go.id/>); and
- Sustainable Forest Management Plans, supported with Annual Logging Plans, which have been prepared and approved under the New Zealand Forests Act 1949 (amended in 1993). These Plans must be prepared in accordance with Standards and Guidelines for the Sustainable Management of Indigenous Forests and guidance for preparing Sustainable Management Plans and Annual Logging Plans. Wood sourced from New Zealand indigenous forests covered by approved plans will be accepted as equivalent to FSC Sustainably Managed Forest certification provided compliance with the approved plans is demonstrated through independent on-site assessment.

For any other schemes to be considered, the applicant will be required to provide detailed information that demonstrates the certification scheme is credible and equivalent.

Example calculation of SFM fibre in the pulp furnish:

Pulp furnish 1:

Pulp	Fibre Source	% of each pulp in the pulp furnish	% SFM certified fibre in the pulp*	% SFM certified fibre in the pulp furnish
Pulp A	Plantations	10	0**	0
Pulp B	Native Forests	10	100	10
Pulp C	Plantations	80	75	60
Total				70

* Paper product manufacturers will need to request information from each pulp manufacturer, including SFM Chain-of-Custody certifications, and potentially also Forest Management certifications for each forest area.

** In this example, the fibre is legally harvested but does not have SFM certification and is, therefore, recorded as 0.

Appendix C: Notes to Clause 5.4.2 (Bamboo)

Legal harvesting:

The following certification schemes will be accepted as sources of information to demonstrate legal harvesting, where SFM certificates and chain of custody evidence is available for virgin fibre sources:

- Forest Stewardship Council – “Certified” or “Controlled Wood”; and
- Programme for the Endorsement of Forest Certification (PEFC) (<http://www.pefc.org/>) “Certified” or “Controlled Sources”.

Sustainable Forest Management (SFM):

The FSC and PEFC certification schemes each have a range of certificates/labels. Some of these allow for fibre from certified sustainably managed plantations or forests to be mixed with non-certified fibre. Under FSC Mixed Credit or PEFC Volume Credit methods, fibre or products associated with the certification claim or label may or may not actually contain fibre from the certified sustainably managed source. Certifications accepted by The Trust are those which will ensure that the required minimum percentages of fibre from sustainably managed bamboo sources, as required by Clause 5.4.2 a), will be actually present in the final ECNZ-licensed product. These are set out below.

Types of FSC claims which can be used to demonstrate compliance with Clause 5.4.2 a):

- FSC 100 %;
- FSC Mix X % - provided the % is > 50 %; and
- FSC Mix Credit – only if the manufacturer can demonstrate that actual FSC material is used for the ECNZ products.

FSC Controlled Wood cannot be used to meet the SFM requirements in Clause 5.4.2 a).

Types of PEFC claims which can be used to demonstrate compliance with Clause 5.4.2 a):

- PEFC Certified – Physical Separation method;
- X % PEFC Certified – Average Percentage method, provided the % is > 50 %; and
- X % PEFC Certified – Volume Credit method – only if the manufacturer can demonstrate that actual PEFC certified material is used for the ECNZ products.

PEFC Controlled Sources material cannot be used to meet the SFM requirements in Clause 5.4.2 a).

For any other schemes, such as programmes run by the International Network for Bamboo and Rattan (INBAR) to be considered, the applicant will be required to provide detailed information that demonstrates the certification scheme is credible and equivalent.

Appendix D: Hazardous Substances Classifications

Table D1- Hazardous Substance Classifications prohibited in EC-60 (Clauses 5.5.1 or 5.5.4)

New Zealand HSNO Classes	Globally Harmonised System Hazard Statement*	Hazard Code**
Acute toxicity (Clause 5.5.1)		
6.1A (oral, dermal, inhalation)	acute oral toxicity Category 1	H300
	acute dermal toxicity Category 1	H310
	acute inhalation toxicity Category 1	H330
6.1B (oral, dermal, inhalation)	acute oral toxicity Category 2	H300
	acute dermal toxicity Category 2	H310
	acute inhalation toxicity Category 2	H330
6.5A	respiratory sensitisation Category 1	H334
6.5B	skin sensitisation Category 1	H317
6.7A	carcinogenicity Category 1	H350
6.7B	carcinogenicity Category 2	H351
6.6A	germ cell mutagenicity Category 1	H340
6.6B	germ cell mutagenicity Category 2	H341
6.8A	reproductive toxicity Category 1	H360
6.8B	reproductive toxicity Category 2	H361
Environmental hazards/Hazardous to the aquatic environment (Clauses 5.5.1 and 5.5.4)		
9.1A	hazardous to the aquatic environment acute Category 1	H400
	hazardous to the aquatic environment chronic Category 1	H410
9.1B	hazardous to the aquatic environment chronic Category 2	H411

* *Hazardous Substances (Hazard Classification) Notice 2020*, EPA, October 2020

** *Globally Harmonised System of Classification and Labelling of Chemicals (GHS); Annex 3 Codification of hazard statements, codification and use of precautionary statements, codification of hazard pictograms and examples of precautionary pictograms*. Seventh revised edition, United Nations, 2017

Table D2- Additional Hazardous Substance Classifications prohibited by Clause 5.5.8 for adhesives in envelopes

Note: Both Table B1 and B2 apply to adhesives in envelopes

New Zealand HSNO Classes	Globally Harmonised System Hazard Statement *	Hazard Code**
Acute toxicity		
6.1C (oral, dermal, inhalation)	acute oral toxicity Category 3 acute dermal toxicity Category 3 acute inhalation toxicity Category 3	H301 H311 H331
6.1D	acute oral toxicity Category 4 acute dermal toxicity Category 4 acute inhalation toxicity Category 4	H302 H312 H332
Irritants and sensitisers		
6.3A	skin irritation Category 2	H315
6.4A	eye irritation Category 2	H319, H320
6.5A	respiratory sensitisation Category 1	H334
6.5B	skin sensitisation Category 1	H317
Corrosiveness		
8.2A	skin corrosion Category 1A	H314
8.2B	skin corrosion Category 1B	H314
8.2C	skin corrosion Category 1C	H314
8.3A	serious eye damage Category 1	H318
Explosive, Oxidising and Flammable		
1.1, 1.2, 1.3, 1.4	Division 1.1, 1.2, 1.3, 1.4	H201, H202, H203, H204
2.1.2A	aerosol Category 1; aerosol Category 2	H222, H223
3.1A	flammable liquids Category 1	H224
3.1B	flammable liquids Category 2	H225
3.1C	flammable liquids Category 3	H226
4.1.1A	flammable solids Category 1	H228
4.1.1B	flammable solids Category 2	H228
5.1.1A	oxidising liquids Category 1, or oxidising solids Category 1	H271
5.1.1B	oxidising liquids Category 2, or oxidising solids Category 2	H272
5.1.1C	oxidising liquids Category 3, or oxidising solids Category 3	H272

* Hazardous Substances (Hazard Classification) Notice 2020, EPA, October 2020

** Globally Harmonised System of Classification and Labelling of Chemicals (GHS); Annex 3 Codification of hazard statements, codification and use of precautionary statements, codification of hazard pictograms and examples of precautionary pictograms. Seventh revised edition, United Nations, 2017

NOTE: There are different classification systems for hazardous substances that are used internationally. As the ECNZ specifications need to consider products that are manufactured in New Zealand and overseas, it is necessary to consider the equivalence of hazardous property

classification systems in different jurisdictions. The tables above show the (broadly) equivalent New Zealand HSNO Classifications and the United Nations' Globally Harmonised System of Classification and Labelling of Chemicals (GHS) classifications. The seventh revised edition of the Globally Harmonised System (GHS 7) has been adopted as New Zealand's official hazard classification system. It takes effect from 30 April 2021 and will replace the HSNO classes. GH7 assigns classification to a hazardous substance based on its physical hazards, human health hazards and environmental hazards.

It is important to note that the GHS is a classification framework and the particular classifications applied to a substance may vary between jurisdictions (for example Europe, the United States and New Zealand each have their own agency with responsibility for assessing and classifying hazardous substances). Differences between classifications can be due to the weight placed on particular toxicity studies (i.e. a jurisdiction may consider that a study is flawed) or in the event that new information becomes available (i.e. differences in the timing of the classification or re-classification of a substance).

Where there is a discrepancy between the classifications applied to specific substances in the different schemes, the Trust's appointed technical advisors will review supporting information regarding the classifications on a case-by-case basis to determine and recommend to the Trust how these discrepancies should be managed within the life cycle context of the relevant product category. Where appropriate, technical clarifications and changes, with accompanying explanation, will be included in the relevant specification.

Appendix E: Information required from pulp suppliers

Table E1 – Information required from pulp suppliers about the pulp being supplied to the paper product manufacturer

EC-60 Clause*	Information required	Evidence provided by pulp supplier
5.4.1	Recycled content: Confirmation of % recycled content in the pulp.	
	Pulp made with virgin fibre from native forests – evidence of Sustainable Forest Management (SFM): COC certificate showing FSC or PEFC 100 %. Allocation of FSC or PEFC credits is not relevant here.	
	Pulp made with virgin fibre from plantation forests – evidence of legal harvesting as a minimum: COC certificate showing FSC or PEFC 100 %; or COC certificate showing Mix % using transfer or percentage system; or COC certificate showing FSC or PEFC Mix (using credit system) and Controlled Wood, accompanied by list of forest sources, copies of Forest Management Certificates, and confirmation of the % fibre from certified SFM forests in the pulp. Allocation of FSC or PEFC credits is not relevant here.	
5.4.2	Bamboo: SFM and legal harvesting information for bamboo fibre.	
5.4.3	Other plant fibres: SFM and legal harvesting information for other plant fibres.	
5.5.2	Bleaching: Declaration of Elemental Chlorine Free (ECF), Process Chlorine Free (PCF) or Total Chlorine Free (TCF).	
	Complexing agents: Declaration that EDTA is not used.	
5.5.4	Recycled fibre: Biodegradability information for de-inking surfactants, and declaration that alkylphenol ethoxylates (APEOs) or other alkylphenol derivatives are not used.	
	Foam inhibitors: Safety data sheet (SDS) for each foam inhibitor, and declaration that alkylphenol ethoxylates (APEOs) or other alkylphenol derivatives are not used.	
5.5.5	Cleaning solvents: Safety data sheet (SDS) for each cleaning solvent.	

EC-60 Clause*	Information required	Evidence provided by pulp supplier
5.5.6	Biocides: Safety data sheet (SDS) for each biocide.	
5.6.1	CO₂: kg CO ₂ /ADt pulp produced This should be apportioned to the amount of pulp being supplied to the paper product manufacturer.	
5.6.2	AOX: kg AOX/ADt ECF pulp produced, or declaration that the pulp is TCF. This should be apportioned to the amount of pulp being supplied to the paper product manufacturer.	
5.6.3	Other emissions: kg S, NO _x , P and COD per ADt pulp produced. This should be apportioned to the amount of pulp being supplied to the sanitary paper product manufacturer.	
5.7	Energy management information: If available	
5.8	Water management information: If available	
5.10	Waste management information: If available	

* Please see the relevant Clause in EC-60 for full details of the requirements and indication of appropriate supporting information.