



The New Zealand Ecolabelling Trust

Proposed Licence Criteria for Chemicals - for use in ECNZ-licensed products

EC-53-12

Open for comment until 19 March 2012

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Specification change history

Minor clarifications, corrections or technical changes made since the specification was last reviewed and issued in January 2012.

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 14024:1999 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 product and services on the basis of 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 to require monitoring and reporting. These criteria are designed to generate information for future reviews of specifications.

The Trust is pleased to publish this proposed specification for Chemicals - for use in ECNZ-licensed products. The specification has been published to take account of substances and processes harmful to the environment, energy management and waste management.

This proposed specification sets out the requirements that Chemicals - for use in ECNZ-licensed 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 proposed specification has been prepared based on relevant information from other ECNZ specifications.

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Once finalised, this specification will be 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.

The Trust invites comments from interested parties on this proposed new specification. This proposed specification has drawn on information from life-cycle research and other specifications produced by ECNZ. The Trust is keen to receive comments about how applicable and relevant the information and requirements included in the specification are to differentiate environmentally preferable products in the New Zealand market. The Trust is also keen to receive comments on how achievable and practical the requirements are, including the requirements for testing (including test methods) and verification. This draft specification includes a number of these shaded text boxes. These include notes and comments to assist readers to understand and provide comment on the requirements.

Background to proposing this new specification

Requirements for chemicals used in the manufacture of products are currently set out in a range of ECNZ specifications for different products (e.g. cleaning products, paints and carpets). The requirements in those specifications cover characteristics of the ingredient chemicals and requirements for their use in manufacturing the products (e.g. concentrations or quantities used). Gathering evidence to demonstrate chemical ingredients meet detailed requirements about their characteristics (hazard classification or biodegradability, for examples) has proven challenging for many end product manufacturers who need to rely on chemical suppliers over whom they have limited influence to provide the necessary technical data. This proposed specification will provide an opportunity for chemical manufacturers and suppliers to demonstrate the environmental preference of the chemicals they supply to manufacturers of ECNZ-licensed products.

2 Background

Most ECNZ product specifications include requirements for chemicals which are added to the product or used during its manufacture. This proposed specification will enable chemical suppliers to obtain an ECNZ licence for individual chemicals and simplify the task for product manufacturers seeking compliant ingredients or process chemicals. Limits on ingredient quantities in ECNZ-licensed products are still relevant for product manufacturers applying for an ECNZ license for those end products. These limits are given in each ECNZ product specification, where applicable.

Chemicals are pervasive in our society and provide undoubted benefits. They can also represent a potentially significant burden in terms of ecotoxicity, wastewater loading and subsequent treatment, adverse effects on users, resource consumption, and disposal of packaging materials.

The environmental and health burden from chemicals includes those used during the manufacture of products as well as ingredients in chemical products themselves, such as cleaning products. Organochlorines and other halogenated organics used in or resulting from the manufacturing process can have persistent toxic effects in the aquatic environment. Process effluents with high chemical loading can deplete oxygen from receiving waters, adversely impacting plant and animal life. Volatile organic compound (VOC) emissions from solvents can degrade indoor air quality. Dyes and pigments can have human health and environmental hazards associated with heavy metals and carcinogenic azo dyes.

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To reduce environmental and health impacts, chemicals should be non-toxic or environmentally innocuous / readily biodegradable, and the degradation products should not pose an unacceptable risk to human health or the environment. The principle of substituting hazardous substances with less hazardous ones is widely used in ecolabelling specification criteria, which restrict the use of chemicals according to their hazard classifications. It is an approach set out in the European discussion paper “The Path to Sustainable Use of Chemicals in Products: The European Ecolabel as a Signpost” (December 2008). The Trust has adopted this approach widely in other ECNZ specifications. Controlled hazard classifications include carcinogens, mutagens, chemicals toxic to reproduction, allergens and sensitisers, ecotoxic and bioaccumulative substances.

Responsible use and disposal of chemicals will also reduce health and environmental risks. Safety Data Sheets (SDS) contain much of the information necessary for responsible chemical use and the provision of accurate, up-to-date and complete SDS to chemical users is a responsibility of each chemical supplier.

Packaging also has environmental impacts, depending upon the type of packaging used and disposal options. Reducing, reusing and/or recycling packaging will conserve valuable resources and reduce the volume of packaging entering the waste stream.

Criteria have also been included in this proposed specification for waste management and energy management. These have been included to address environmental issues across the entire life-cycle of the chemicals. Product stewardship requirements should ensure that appropriate disposal methods are available for unwanted or expired chemicals.

Based on a review of currently available environmental information, the following product category requirements will produce environmental benefits through the reduction of hazardous substances; minimising potential for contaminants in water; improving energy efficiency and minimising the impacts of packaging. As information and technology change, product category requirements will be reviewed, updated and possibly amended.

3 Interpretation

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.

GEN refers to the Global Ecolabelling Network.

HSNO means the Hazardous Substances and New Organisms Act 1996.

ISO means International Organisation for Standardisation.

Label means the Environmental Choice New Zealand Label.

Safety Data Sheet (SDS) means a document that describes the properties and uses of a substance, that is, identity, chemical and physical properties, health hazard information, precautions for use and safe handling information. These may also be called Material Safety Data Sheets (MSDS).

Waste Management Programme means a programme to achieve and sustain efficient and effective minimisation and disposal of waste including policies, practices, planning activities, responsibilities and resources that affect the organisation’s performance for achieving the objectives and targets of the Waste Policy.

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4 Category Definition

This category includes chemicals intended for use in the manufacture of ECNZ-licensed products. This includes chemicals that form part of the finished product and chemicals which are used in the manufacturing process.

A chemical will be licensed under this Chemical – for use in ECNZ-licensed products specification with reference to one or more of the ECNZ product specifications, e.g. “Chemical X is licensed under EC-53-12 Chemicals, for use as a surfactant in EC-29-09 Toiletries and EC-22-08 General Purpose Cleaners.”

To be licensed to use the Label, Chemicals - for use in ECNZ-licensed products must meet all of the environmental criteria set out in clause 5 and service characteristics set out in clause 6.

NOTES & QUESTIONS

Most ECNZ product specifications include requirements for chemicals which are added to a product during manufacture or used during the production process. These are the types of chemicals included in the scope of this specification. The category definition broadly applies to any chemical used during manufacture of products which are covered by an ECNZ product specification.

Q1) Do you agree that the proposed category definition is clear and appropriate? If not, please comment on why not and what you would suggest to make the category definition clearer and/or more appropriate.

5 Environmental Criteria

5.1 Legal Requirements

Criteria

The chemical must comply with the provisions of all relevant environmental laws and regulations that are applicable during the chemical’s life cycle.

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 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;

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- transporting product or raw materials within and between countries; and
- using and disposing of the product.

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.

Within New Zealand, authorisation is required under the Hazardous Substances and New Organisms Act (HSNO) to import or to manufacture hazardous substances. Authorisation may involve a specific approval for a hazardous substance or approval under a Group Standard. The authorisation, Group Standards and regulations under HSNO set requirements for managing the hazardous substance (for example, storage, labelling and emergency preparedness). Information about requirements under HSNO is available from the Environment Protection Agency (EPA) and at <http://www.epa.govt.nz/Pages/default.aspx>. Regulatory requirements on hazardous substances may also apply under the Resource Management Act (RMA), in particular in regional and district plans prepared under the RMA, and in Council bylaws.

NOTES & QUESTIONS

This is a standard clause in all ECNZ specifications. ISO 14024 Principle 5.3 *Relationship with legislation*, requires that applicant compliance with environmental and other relevant legislation be a precondition for granting and maintaining a licence to use the ECNZ label. ISO 14024 Clause 7.4.3 on *Supporting Information for assessing compliance* includes the following obligations for ECNZ:

- to require applicants to make a commitment to comply with environmental and other relevant legislation; and
- to obtain documentary evidence of the applicant's conformity with the programme requirements, with all data of known and verifiable quality.

Q2) Do you agree that the requirements proposed are appropriate? If not please explain why not and what, if any, other approach you would suggest.

5.2 Specific requirements based on use

Criteria

- The licence applicant/holder or chemical manufacturer must identify the chemicals it wishes to be licensed and the ECNZ product specifications it would like its chemical(s) to be considered against, by completing the table in Appendix A.
- The identified chemicals must meet all of the relevant requirements in applicable clauses in the identified product specification(s).

Note: A list of all applicable clauses in each ECNZ product specification is given in Appendix B. This list is not exhaustive. Relevant requirements in other ECNZ product specifications which are not included in the list in Appendix A should be discussed with an ECNZ assessor.

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Verification Required

Conformance with this requirement shall be stated in writing, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by:

- a list of chemicals and details for each as set out in the table in Appendix A; and
- the additional supporting information required as part of the specifications the chemical is to be considered against.

NOTES & QUESTIONS

At present, 32 ECNZ product specifications have requirements for chemicals used as ingredients or in the manufacturing process for an end product. The specific requirements from each product specification have not been reproduced here and licence applicants should refer to the relevant product specification for details of the requirements. The tables in Appendix A summarise the main applicable clauses in each product specification. This approach will allow changes and updates to be made to the individual product specifications without requiring significant changes to this specification. The tables in Appendix A will be updated as appropriate in line with any changes to product specifications.

Q3) Do you agree that referring to requirements in each product specification is the most straightforward way to identify requirements for chemicals which will be licensed under this specification? If not please explain why not and what, if any, other approach you would suggest.

5.3 Chemical Safety Data Sheets

Criteria

a Chemicals sold in or imported into New Zealand must have a Safety Data Sheet (SDS) available which complies with the requirements of Hazardous Substances and New Organisms Act (HSNO) or an equivalent means of complying with the requirements of Regulations 37 to 50 of the Hazardous Substances (Identification) Regulations 2001, the requirements of Regulations 12 to 20 of the Hazardous Substances (Emergency Management) Regulations 2001 and the requirements of Regulations 13 and 14 of the Hazardous Substances (Disposal) Regulations 2001.

OR

Chemicals for use in other countries must have an SDS available which complies with the legal requirements of that country.

It is expected that this SDS will be in the internationally standard 16-section format and use a widely recognised hazard classification system such as the Global Harmonised System (GHS) or the EU system of Risk and Safety phrases.

- b The licence applicant/holder or the chemical manufacturer must have a documented process for the preparation of SDS, including:
- approval by an appropriately knowledgeable person;
 - inclusion of issue date and version number;
 - a process of regularly reviewing existing SDS; and
 - a process to provide updated SDS to customers.

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- c SDS must be provided to each customer at a minimum every three years or more often if changes have been made, and must be readily available on request.
- d Updated SDS must be provided to each existing customer within 3 months of issue.
- e SDS must be available electronically as well as in hard copy.

Verification Required

Conformance with this requirement shall be stated in writing, signed by the Chief Executive Officer or other authorised representative of the applicant company. This statement shall be supported by:

- safety data sheets;
- copies of all relevant processes for preparation, review and distribution of SDS to customers and evidence that these processes have been implemented successfully in your company; and
- information about where SDS can be obtained electronically.

A Code of Practice for the Preparation of Safety Data Sheets, HSNOCOP 8-1, has been developed by the Responsible Care® NZ Inc (formerly the New Zealand Chemical Industry Council (NZCIC)) and is available from their website: www.nzcic.org.nz

Additional supporting documentation about quality control and production processes may also be required to demonstrate that compliance with the requirement is checked and consistently achieved.

NOTES & QUESTIONS

During ECNZ product assessments, ECNZ assessors review many SDS. A large number of these SDS are old, do not contain the standard 16 sections of information and/or do not meet the New Zealand regulatory requirements under HSNO. These SDS do not provide enough information about the chemical to determine the risks associated with it or if it meets relevant ECNZ product-specific requirements. Product manufacturers often have difficulty obtaining current and compliant SDS from chemical manufacturers.

Clause 5.3 places the onus on the chemical manufacturer to provide appropriate information to its customers on the hazards associated with the chemical.

Q4) Do you agree that setting requirements on SDS is appropriate? If not please explain why not and what, if any, other approach you would suggest.

5.4 Energy Management

Criteria

- a The licence applicant/holder and chemical manufacturer must have effective energy management policies and procedures and/or an energy management programme.
- b Licence holders must report annually to the Trust on energy management, including:
 - total energy use;
 - breakdown of total energy use to types of energy used;
 - energy use related to production;
 - initiatives taken to reduce energy use and improve energy efficiency;

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- initiatives taken to calculate and reduce CO₂ emissions associated with energy use; and
- initiatives or requirements for suppliers or contract manufacturers.

Verification Required

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

- describes the energy management policies, procedures and programmes; and
- includes annual reports on energy use and management.

NOTES & QUESTIONS

These requirements are standard in other ECNZ specifications. The Trust intends to monitor reported information and further developments in the New Zealand Government's energy and climate change policies, with the expectation that additional requirements will be considered in future reviews of this specification.

Energy use is a significant potential contributor to carbon emissions associated with manufacturing chemicals. The Trust is not proposing criteria on carbon emissions, choosing rather to focus on energy management, which a manufacturer has a significant ability to control or influence. Reporting on any initiatives to calculate and manage carbon emissions will provide the Trust with information to help decide if specific criteria may be applicable in some future review of this specification.

These requirements are not intended to be onerous but to enable the Trust to collect baseline data so that energy related targets can be set in future revisions of the specification. Guidance for licence applicants and holders on the detail required in the annual report requested in part (b) has been prepared by the Trust. The guidance requests that the report be between 2-4 pages with attached graphs, spreadsheets or tables, as applicable. If this energy reporting is being done as part of other formal management reporting, copies or extracts from those reports may be sufficient, if all the information required in part (b) is included in that report. In these cases a brief covering letter or memo summarising and referencing the relevant information should be provided to the Trust along with the report.

Q5) Do you agree that requiring reporting on energy use and management is an appropriate approach for the Trust to take at this time? If not can you please comment on why and what you would suggest as an alternative approach (if any)?

5.5 Waste Management

Criteria

- The licence applicant/holder and chemicals manufacturer must have effective waste management policies and procedures and/or a waste management programme.
- Licence holders must report annually to the Trust on waste management including:
 - quantities and types of waste recovered for reuse internally and externally;
 - quantities and types of waste recycled internally and externally;
 - quantities and types of waste disposed of to landfill;

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- quantities and types of waste burned internally for energy recovery;
- waste generation related to production;
- initiatives taken to reduce waste generation and improve recovery/recycling of waste; and
- initiatives or requirements for suppliers or contract manufacturers.

Verification Required

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

- describes the waste management policies, procedures and programmes; and
- includes annual reports to the Trust on waste generation and management.

NOTES & QUESTIONS

These requirements are standard in other ECNZ specifications. The Trust considers that it is appropriate to include criteria for waste management in light of the increased pressure for space in landfills. The approach also aligns with current measures being implemented under the New Zealand Waste Strategy and local authority Waste Minimisation Plans to reduce the amount of waste material produced in New Zealand and increase recycling rates.

The Trust intends to monitor reported information and further developments in the New Zealand Government's and local authorities waste policies and plans, with the expectation that additional requirements for waste management will be considered in future reviews of this specification.

These requirements are not intended to be onerous but to enable the Trust to collect baseline data so that waste related targets can be set in future revisions of the specification. Guidance for licence applicants and holders on the detail required in the annual report requested in part (b) has been prepared by the Trust. The guidance requests that the report be between 2-4 pages with attached graphs, spreadsheets or tables, as applicable. If this waste reporting is being done as part of other formal management reporting, copies or extracts from those reports may be sufficient, if all the information required in part (b) is included in that report. In these cases a brief covering letter or memo summarising and referencing the relevant information should be provided to the Trust along with the report.

Q6) Do you agree that requiring reporting on waste disposal and management is an appropriate approach for the Trust to take at this time? If not can you please comment on why and what you would suggest as an alternative approach (if any)?

5.6 Packaging Requirements

Criteria

- a All plastic packaging must be made of plastics that are able to be recycled in New Zealand (or the country to which the product is exported and sold).
- b Packaging must not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent recycling (i.e. PVC sleeves, metallic labels).

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- c Information shall be provided to ECNZ at 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:
- i. the percentages by weight of recycled and virgin PVC;
 - ii. the particular production processes (membrane cells, non asbestos diaphragms, modified diaphragms, graphite anodes, mercury cells, closed-lid production etc) used to produce chlorine and VCM for the PVC being used in the packaging for ECNZ-licensed products (including the locations of the production);
 - iii. 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);
 - iv. information on any Environmental Management System (EMS) for the production process, including requirements for waste, water, air and product-related requirements;
 - v. the types of stabilisers used;
 - vi. 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;
 - vii. research and initiatives implemented on substitutes for phthalates identified as of concern by regulators; and
 - viii. 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).
- d Cardboard packaging shall consist of at least 80% recycled content.
- e The label must be sufficiently durable to resist degradation if splashed with water or the chemical.

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. This statement shall be supported with the following documentation and evidence.

Conformance with criteria (a) shall be supported by documentation from the Recycling Operators of New Zealand (RONZ) verifying the packaging is recyclable.

Conformance with criteria (b) shall be demonstrated by providing samples of all plastic containers and components.

Conformance with criteria (c) shall be demonstrated by providing initial and ongoing annual reports to ECNZ on PVC and plasticisers used. This should include as much of the available information required in (c) as possible.

Conformance with criteria (d) shall be supported by documentation from the packaging manufacturer verifying the recycled content of the cardboard packaging.

Conformance with (e) shall be supported by copies of the product labels and information about their durability.

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NOTES & QUESTIONS

Requirements a), b) and d) are similar to standard requirements for packaging in other in ECNZ specifications.

- Q7) Do you agree with the proposed requirements in a), b) and d)? If not, can you please comment on why and what you would suggest as an alternative approach (if any)?**
- Q8) Are there any functional or safety requirements specific to packaging for chemicals which could not be met if the criteria in a) , b) and d) were applied? If yes, please provide details of these functional or safety requirements.**

Requirement e) aims to ensure vital information about safe use and disposal of the chemical is not compromised by degradation of the label.

- Q9) Do you agree with the wording of requirement (e)? If not, what alternative wording (if any) do you consider to be more appropriate?**
- Q10) Do any of the other packaging requirements in this Clause prevent the chemical label from meeting requirement (e)?**

PVC packaging

The majority of current ECNZ specifications ban the use of PVC (polyvinylchloride) packaging, however, the Trust has reviewed its stance on PVC packaging (and PVC in general). Details of the background research on PVC are included below. The Trust, having considered the development of approaches to PVC and phthalates, has decided not to include a particular ban on PVC in packaging in this specification. The reporting requirements in Clause 5.6 c) are based on health concerns and responses from stakeholders and on the criteria in the Green Building Council Australia's (GBCA) Best Practice Guidelines.

- Q11) Do you agree with the proposed reporting process for PVC packaging to provide information and data for future specification reviews? If not, please comment on why not and what you would suggest as an alternative, if any.**

Background to the Trust's approach to PVC

Concerns and requirements about PVC have been raised in a number of fora and rating schemes for building and building products. Given the importance of PVC in green building rating tools and some issues raised by ECNZ stakeholders, The Trust has specifically reviewed the issues and its position on PVC in ECNZ specifications. Information on this follows.

About PVC

PVC is a manufactured plastic polymer that has been in commercial production since the early 1930s. Some 30 million tonnes are produced globally each year, 20% of total global plastic production. PVC has many uses ranging from rigid construction products (e.g. pipes, windows, doors) through a wide range of rigid or flexible electrical (e.g. wire coatings, cables and plugs) and consumer products (e.g. toys, floor coverings, shoe soles, packaging and cling-film). It provides important performance features including being durable, weatherproof, and resistant to corrosion and chemical action, strong and a barrier to gas and water¹.

¹ PVC: Reaching for Sustainability. Dr Mark Everard, published by IOM Communications Ltd, 2008.

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PVC Manufacture

PVC is produced from a hydrocarbon feedstock and chlorine, with chlorine comprising around 57% of the plastic polymer mass. PVC manufacturing is a significant use for all manufactured chlorine, accounting for some 35% of chlorine manufactured in the European market and 40% globally².

Two main processes, using different hydrocarbon feedstocks, are used to produce the vinyl chloride monomer (VCM) which is polymerised to produce PVC. The acetylene process uses coke as a carbon feedstock. Lime is added in the carbide process to produce acetylene which is in turn reacted with anhydrous chlorine (using a mercury catalyst) to produce VCM. The ethylene process uses ethylene from oil or natural gas as a carbon feedstock. Ethylene is reacted with chlorine gas to produce ethylene dichloride (EDC) and a further cracking process (using a copper catalyst) produces VCM. Most production of VCM now occurs using the ethylene process, apart from in China where large coal resources have supported ongoing use of the older acetylene process.

VCM is polymerised (using either a suspension or an emulsion process) to produce the PVC polymer. About 80% of polymerisation uses the suspension method. While the two processes are similar, they involve using different additives and produce different PVC grain size. Additives used to aid polymerisation in the suspension process may include protective colloids of polyvinyl alcohol, soluble cellulose, ethers, monomer soluble organic peroxides, pH regulators and antifoaming agents. Additives used in the emulsion process include potassium persulphate and ammonium persulphate. In the polymer, residue VCM may be present at less than 1ppm.

The PVC polymer is then compounded. This involves, generally, a series of mechanical mixing steps where lubricants, stabilisers, pigments or fillers, impact modifiers, plasticisers (for flexible PVC), nitrile rubbers, flame retardants and biocides are, or may be, added. In the final PVC, additives may comprise more of the weight of the product than the PVC polymer.

Environmental and health concerns about PVC^{3,4,5}

There are a number of concerns about PVC, including:

- The use of chlorine. PVC production is the largest user of chlorine and produces the world's largest volume of an organochlorine. Organochlorines are of concern because of their persistence and toxicity.
- Hazardous wastes produced in manufacturing. Hazardous wastes containing chlorine are produced during the synthesis of EDC and VCM including chlorinated furans (polychlorinated dibenzofurans), PCBs (polychlorinated biphenyls), HCB (hexachlorobenzene) and OCS (octachlorostyrene). These types of substances are of concern because they are persistent, bioaccumulative and toxic. The monomer, VCM is also a known human carcinogen. EDC is a probable human carcinogen. The acetylene production process produces large volumes of hazardous wastes, including slag and sludges (up to 3-4 tonnes of slag per single tonne of PVC polymer produced) as well as pollutant emissions to air (including complex hydrocarbons, carbon monoxide and dust)

² Environmental Impacts of Polyvinyl Chloride Building Materials. Joe Thornton, PhD, Healthy Building Network Report, United States, 2002.

³ Hazardous Chemicals in PVC Flooring. A report compiled for the Health Flooring Network by Michelle Allsopp, David Santillo and Paul Johnston, Greenpeace Research Laboratories, November 2000.

⁴ Life Cycle Assessment of PVC and of principal competing materials. Final Report. Commissioned by the European Commission 2004.

⁵ Green Paper Environmental Issues of PVC. Com (2000)469 Final. Commission of the European Communities 26 July 2000.

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and water.

- On burning (whether intentional incineration or in accidental fires), PVC produces dioxins. Dioxins may also be formed during synthesis of EDC and VCM. Dioxins are of concern because of their persistence and toxicity (human carcinogens and toxic to reproduction and development).
- Plasticiser additives in PVC. Some plasticiser additives, in particular phthalates, are toxic to human reproduction and disrupt the human endocrine system. Phthalates can be moderately bioaccumulative and moderately persistent. Plasticisers can comprise more than 50% by weight of PVC products and can be released to the environment during use and disposal stages of the product life-cycle.
- Other additives in PVC. Heavy metals, including cadmium, lead and organotins may be added to PVC as stabilisers. These heavy metals are of concern because of their persistence and toxicity. Lead is a human developmental and reproductive toxin, is ecotoxic, bioaccumulative and persistent. Cadmium is a neurotoxin and carcinogen, and it bioaccumulative and persistent. Organotin can disrupt the immune system and the endocrine system. These heavy metals can be released to the environment, in particular during the production and disposal stages of the life cycle of the products.
- Pollution from mercury. The acetylene process to produce VCM can release mercury to the environment. Mercury is of concern because it is persistent and is a reproductive, developmental and neurological toxin.
- Energy use. Production of VCM, in particular the carbide process is a significant energy user, reported to consume around 1% of the world's total electricity output⁸.
- PVC is difficult to recycle. In the early 2000s as little as 3% of post consumer PVC was being recycled in Europe⁸.

Responses to concerns

Early responses (in the mid-late 1990s) to the concerns about PVC focussed on substituting and phasing out PVC. These responses, however, did not take account of the social and economic consequences and impacts of substitution and phase-out, or the environmental probity of the substitutes or alternative products.

There have been a number of other responses to the concerns, including the following.

PVC industry responses:

- Voluntary commitments made in 1995 by European manufacturers of VCM to meet strict emission limits from VCM production and suspension polymerisation processes by 2008 (subject to independent audit in 1998 showing 88% compliance) with further commitment to full compliance by 2003 (also subject to independent audit)²⁵.
- Vinyl 2010, voluntary commitment by European PVC industry including quantitative progressive objectives to recycling and phasing out Cadmium, research, reporting and verification^{11,6}. A further commitment, Vinyl 2020 is current being developed.
- Hydro Polymers The Natural Step-based PVC for Tomorrow programme launched in 2005¹⁸.

Business responses:

- A PVC Retailer Working Group, established in 1996 in the United Kingdom which

⁶ Vinyl 2010 Progress Report 2009: Reporting on the activities of the year 2008. Vinyl 2010 The European PVC Industry's Sustainable Development Programme

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commissioned research by the National Centre of Business and Ecology (NCBE).

- Publication of the NCBE research in 1997⁷ concluding that “careful manufacture, use, recycling and final disposal of PVC products to the highest standards can control the risks associated with the material to acceptable levels but will not completely eradicate them”.
- A PVC Coordination Group established in the United Kingdom in 1998, which also included the Environment Agency and commissioned work on a sustainability gap analysis for the PVC industry and a Code of Practice.
- Publication in 1999 of the Eco-Efficiency Code of Practice for the Manufacture of PVC by NCBE.
- Publication of the sustainability gap analysis completed by The Natural Step in 2000⁸.
- A PVC Stakeholder Forum for Sustainability established to monitor progress on the challenges presented in the Natural Step gap analysis and on the Vinyl 2010 commitment.

Government responses:

- United Kingdom Environmental Agency participation in the PVC Coordination Group in 1998.
- Publication of research on life cycle analysis for PVC, completed for the United Kingdom Government in 2001⁹.
- European Commission/Parliament work to establish a community-wide strategy and approach to PVC including:
 - Research projects 1999-2000
 - Green Paper on Environmental issues of PVC 2000¹¹
 - Consultation on the Green Paper
 - European Parliament resolution April 2001 on the Green Paper¹⁰
 - Further research into life cycle assessment of PVC published in 2004¹⁰.

Green Building Rating Scheme responses:

- New Zealand Green Building Council Green Star rating schemes for buildings have points that encourage reduction in PVC products¹¹.
- In April 2010, the Green Building Council of Australia (GBCA) changed its stance on PVC in all its Green Star rating tools from encouraging minimisation of PVC use, to development and use of best practice PVC¹².

The GBCA’s consultation documents include some guidelines about best practice throughout the life cycle of PVC products. These cover:

- production of chlorine and VCM;
- waste, water, air and product emission thresholds for EDC, VCM, PVC manufacturing processes;

⁷ Summary Report for the PVC Retail Working Group. National Centre for Business and Ecology, Manchester 1997

⁸ PVC: An Evaluation Using the Natural Step Framework. 2000

⁹ Life cycle assessment of Polyvinyl chloride and alternatives. Summary report of Entec UK Ltd and Ecobalance to United Kingdom Department of the Environment, Transport and the Regions.

¹⁰ European Parliament resolution on the Commission Green Paper on environmental issues of PVC (com(2000) 469 – C5-0633/2000 – 2000/2297(COS))

¹¹ <http://www.nzgbc.org.nz/main/greenstar/elaboration/ratingtools/nzoffice>

¹² www.gbca.org.au/green.../pvc-minimisation-credit-review/2716.htm

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- the use of stabilisers and plasticisers;
- end of life stewardship; and
- publication in August 2010 of the revised Green Star PVC credit and Best Practice Guidelines for PVC in Building Products by the Green Building Council Australia (GBCA)¹³

Phthalates

There have been a number of government responses to issues specifically concerning phthalates. These have focussed on specific individual or groups of phthalates.

The European Community has adopted a precautionary approach. In 2005, it banned the use of some phthalates in children's toys and products that are intended "to facilitate sleep, relaxation, hygiene, the feeding of children or sucking on the part of children" (2005/84/EC). In June 2009, the European Commission Regulation 552/2009¹⁴ (amending the REACH Annex XVII) banned six phthalates (DEHP, DBP, BBP, DINP, DIDP and DNOP¹⁵) from toys and childcare articles (in concentrations greater than 0.1%).

DEHP, DBP and BBP are included on the REACH Candidate List of Substances of Very High Concern (SVHC) and in June 2009 the European Chemical Agency (ECHA) recommended to the European Commission that seven SVHCs, including DEHP, DBP and BBP be included on the REACH Annex XIV List of SVHCs that will require specific authorisation to be used. The effect of being on the Annex XIV List is that authorisation must be obtained for any and every particular use of the listed SVHCs in substances or products in the European market. Under REACH there are two routes for gaining authorisation, either by demonstrating that the proposed use of the substance is safe as the risks are adequately controlled, or demonstrating that the use is so important on socio-economic grounds that its continued use outweighs the risks to human health or the environment.

The ECHA background documents for the recommendations on DEHP¹⁶ and the equivalent documents on BBP and DBP, confirm the classification of these plasticisers as Category 2 Toxic to Reproduction. The background documents examine the use of the plasticisers, the environmental and health risks associated with those uses, the European market (number of parties involved) and information on alternative substances. With respect to DEHP, the background document reports that:

- it is widely used in a broad range of PVC products, including medical devices and in significant proportions (up to 30% by weight in some materials);
- when used as a plasticiser in flexible polymers, it is not chemically bound in the matrix, which means it can be released to the environment during the use phase of its lifecycle (particularly from washing floors or wall coverings);
- there are multiple users and parties involved in the supply chains of products using or containing DEHP;
- while substitute substances have been used in many products (including toys) and there is a range of potential alternative substances to DEHP, only a few have undergone comprehensive environmental and health impact, or technical feasibility assessments for

¹³ Literature Review and Best Practice Guidelines for the Life Cycle of PVC Building Products, 10 August 2010

¹⁴ Commission Regulation (EC) No 552/2009 of 22 June 2009 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards Annex XVII, Entries 51 and 52.

¹⁵ DEHP – Di(2-ethylhexyl) phthalate, DBP - Dibutyl phthalate, BBP - Benzyl butyl phthalate, DINP – Di isononyl phthalate, DIDP - Di isodecyl phthalate, DNOP – Di-n-octyl phthalate.

¹⁶ European Chemicals Agency, 1 June 2009. Background document for bis(2-ethylhexyl) phthalate (DEHP): Document developed in the context of ECHA's first Recommendation for the inclusion of substances in Annex XIV.

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substitution in specific applications;

- some alternatives to DEHP have also been shown to have reproductive toxicity;
- inclusion on the REACH Annex XIV list would result in authorisation being required for use in products at a concentration greater than 0.5%, except for the case of toys and childcare articles (separate regulations for toys and childcare articles set a limit of 0.1% by mass of the plasticised material).

Because of the limits on information available (including assessment information on alternatives) and multiple parties involved, ECHA recommends an extended period for preparing applications for authorisations, allowing applications as late as 30 months after the listing in Annex XIV is confirmed and a sunset date after 48 months. Similar findings and recommendations are made in the ECHA's background reports on DBP and BBP.

Specific phthalates (DEHP, DBP and BBP) have been subject to some regulatory controls and reporting requirements in the United States for some years. In December 2009, the Environmental Protection Agency (EPA) issued an Action Plan on Phthalates¹⁷. The Plan covers eight phthalates (the six covered in the European regulations; DBP, BBP, DEHP, DnOP, DINP, DIDP and two others; DIBP – diisobutyl phthalate and DnPP- di-*n*-pentyl phthalate). The Action Plan explains these are of concern because of their presence in humans; persistent, bioaccumulative and toxic characteristics; use in consumer products and production volumes. It examines data that are available about the eight phthalates and substitutes that may be available. The Action Plan sets out the EPA's intentions for further investigation and rulemaking, including the following:

- to initiate rule making later in 2010 to list all eight under the Toxic Substances Control Act as chemicals that present an unreasonable risk of injury to health or the environment;
- to initiate rule making late 2010 to add the six phthalates not already listed to the Toxics Release Inventory;
- begin work for considering initiating rule making in 2012 to regulate the eight phthalates; and
- completing a Design for the Environment and Green Chemistry alternatives assessment by 2012.

PVC and Ecolabels

Other GEN member specifications also include requirements on plasticisers (or phthalates specifically), which may be used in PVC (polyvinyl chloride) in particular. The European Textile Floor Coverings has a criterion which sets restrictions on phthalates used in the manufacturing process. The criterion

- bans the use of phthalate plasticisers (except as impurities up to 0.1% in the floor covering) based on the following risk phrases (or combinations):
 - R50 very toxic to aquatic organisms
 - R51 toxic to aquatic organisms
 - R52 harmful to aquatic organisms
 - R53 may cause long-term adverse effects in the aquatic environment
 - R60 may impair fertility

¹⁷ <http://www.epa.gov/oppt/existingchemicals/pubs/actionplans/phthalates.html>

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- R61 may cause harm to the unborn child
- R62 possible risk of impaired fertility
- bans specific phthalates, DNOP (di-n-octyl phthalate), DINP (di-isononyl phthalate) and DIDP (di-isodecyl phthalate)

The Technical Report on the European Textile Floor Coverings specification provides limited information about this criterion. It recommends a simpler wording for the criterion – “*if any plasticiser substance in the manufacturing process is applied, it cannot contain phthalates*” and identifies the Blue Angel specification as a source document. No information about when or on/in what components plasticisers might be used, nor about the environmental importance of these, is provided. The Blue Angel specification bans the use of plasticising substances from the class of phthalates.

The 2011 GECA Floor Coverings specification includes some specific requirements on phthalates as follows:

- “In order to promote the reduction of pollutant hazards in the manufacture, use, or disposal of products, the following substances (and where appropriate, their compounds) must not be added to products during manufacture Phthalates;” (Criterion 15, which also makes provision for exemptions for specific substance.)
- ‘The following compounds, their functional derivatives or in-situ precursors shall not be added to finished products, their component parts or be used at any stage of the manufacturing process, including as preparatory agents, cleaners or degreasers in the production facility:
- The phthalates DEHP, DBP, DAP or BBP.” (Criterion 17)

Background technical information explaining the rationale for the criteria is not available on the GECA website.

Discussion

Initial responses to concerns about PVC which focussed only on substitution and phase out have proved to be simplistic. They have failed to address wider environmental and sustainability issues, such as the environmental probity of alternatives, social and economic impacts and the need to take a more holistic approach to sustainable development.

PVC is a significant technological resource, being used for a wide range of products. Because of its characteristics and widespread use, it has significant economic and social values, contributing to human wellbeing in many applications from infrastructure to medical devices.

Since the 1990s, progress has been made to address many of the particular environmental and health concerns associated with PVC manufacture, use, reuse and disposal. This includes ongoing work to substitute the particular additives of concern (including phthalates), to reduce hazardous waste and emissions from production processes and improve recovery and reuse of PVC. In the case of specific phthalates of concern, regulators in Europe and United States are embarking on careful programmes of investigations (over several years) better to understand risks associated with phthalates and alternatives to phthalates of specific concern. Long-term and ongoing strategies to minimise the specific risks associated with PVC and to work towards closed-cycle

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recovery and reuse of this technological resource are consistent with sustainability approaches such as ECNZ's life cycle approach, The Natural Step principles¹⁸ and Cradle to Cradle¹⁹.

The Trust, having considered the development of approaches to PVC and phthalates is proposing to include a criterion in this specification that will require information to be gathered and reported on PVC and phthalate use in packaging. The Trust intends to use this information to develop a clearer understanding and data about PVC and phthalates in packaging in New Zealand. The reporting requirements in Clause 5.6 (c) are based on health concerns and responses from stakeholders identified above and on the criteria in the GBCA's Best Practice Guidelines. The Trust intends to monitor the implementation of the revised GBCA credit for PVC and to consider and consult on a more comprehensive approach to PVC, where relevant, in future revisions of ECNZ specifications. This may include establishing more specific criteria (e.g. for certain plasticisers). Future criteria for this specification may include requirements on the virgin content of PVC.

Q12) Do you agree that it is appropriate to include the requirements proposed for reporting on PVC and plasticisers in packaging? If not, please explain why not and what, if any, other approach you would suggest.

5.7 User Information

Criteria

- a The information on the chemical label must comply with relevant legal requirements in the country where the chemical is used for inclusion in an ECNZ-licensed product.
- b The chemical must be accompanied by information on correct use, including use of equipment and the personal protection equipment required.
- c The chemical must be accompanied by information on correct disposal/take back of unwanted or unused chemical.
- d The chemical must be accompanied by information on reuse, recycling and/or correct disposal of packaging.

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. This statement shall be supported by:

- example labels; and
- copies of chemical information provided to users

Additional supporting documentation about quality control and production processes may also be required to demonstrate that compliance with the requirement is checked and consistently achieved.

NOTES & QUESTIONS

The Trust proposes the above requirements to promote protection of the environment and

¹⁸ <http://www.naturalstep.org/>

¹⁹ Cradle to Cradle: Remaking the way we make things. William McDonough & Michael Braungart, North Point Press, 2002

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human health during use and disposal of the chemical and its packaging. These criteria are designed to protect the user and provide sufficient information to allow safe and effective use of the chemical.

Q13) Do you agree with the proposed approach for these criteria? If not can you please comment on why and what you would suggest as an alternative approach (if any)?

5.8 Product Stewardship

Criteria

- a The licence applicant/holder or chemical manufacturer must be actively participating in a product stewardship scheme that involves:
- recovery of unwanted or unused chemicals from customers;
 - appropriate reuse, recycling or disposal of the recovered chemicals and chemical containers; and
 - promotion of the product stewardship to customers.
- b Licence holders must report annually to ECNZ on the performance of the product stewardship scheme, including:
- volume of chemicals recovered;
 - the % of recovered chemicals that were re-used and the means by which they were reused;
 - the % of recovered chemicals that were recycled;
 - the % of chemical disposed of and method of disposal;
 - the percentages (by weight) of recovered chemical containers that were reused, recycled or sent to landfill; and
 - initiatives taken as part of the programme to increase the volume of recovered waste chemicals.

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. This statement shall be supported by:

- documentation that describes the product stewardship scheme; and
- includes annual reports on the performance of the product stewardship scheme.

NOTES & QUESTIONS

During the site visits conducted as part of ECNZ product assessments, ECNZ assessors regularly note large quantities of old chemicals being stored on sites. Product manufacturers are often unaware of how to dispose of these old and unwanted chemicals. As the chemicals decompose and packaging and labels breakdown, they pose a bigger problem for appropriate disposal and may have increased risks to human health and the environment.

The Trust proposes the above requirements to promote appropriate and timely disposal of waste, unwanted or expired chemicals.

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The criteria proposed in Clause 5.8 apply only to chemicals which are licensed under this specification.

Q14) Do you agree with the proposed approach for these criteria? If not can you please comment on why and what you would suggest as an alternative approach (if any)?

6 Product Characteristics

Criteria

The chemical shall be fit for its intended purpose and conform, as appropriate, to relevant product performance standards.

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:

- identifying the applicable standards and or consumer/customer requirements; and
- demonstrating how compliance is monitored and maintained.

NOTES & QUESTIONS

This is a standard requirement in ECNZ specifications to ensure that all products licensed by ECNZ work as well as they claim to.

Q15) Do you agree with the proposed approach for these criteria? If not can you please comment on why not and what you would suggest as an alternative (if any) for these criteria?

Q16) Should ECNZ specify specific testing methods/product performance standards to determine fitness for use? If yes, what testing methods of product performance are currently in use?

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 services 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 service delivery records and the right of access to service 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 noncompliance with any requirements of this specification which may occur during the term of the

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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 marketing materials for the chemical, provided that the chemical meets the requirements in this specification and in the Licence Conditions.

Wherever it appears, the Label must be accompanied by the words "Chemicals - for use in ECNZ-licensed products" and by the Licence Number e.g. 'licence No1234'.

The Label must be reproduced in accordance with the ECNZ programmes 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.

SDO

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Appendix B - Specific requirements in ECNZ product specifications

Your chemical(s) can be licensed under EC-53-12 as suitable for use in ECNZ-licensed products provided it meets all of the applicable criteria in the relevant product specification. Relevant criteria for chemicals in each ECNZ specification are listed below. Although some of the clause names may be the same, actually requirements will differ between specifications and Applicants should refer to each specification for the specific requirements for that product category. All specifications are available for download from the ECNZ website www.enviro-choice.org.nz

Table 1 – Cleaning & Toiletries

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-01-08	Hand Dishwashing Detergents	5.2 Formulation Requirements	5.3 Surfactants 5.4 Biocides and Preservatives 5.5 Enzymes 5.6 Fragrance 5.7 Colourants
EC-02-08	Laundry Detergents	5.2 Formulation Requirements	5.3 Complexing Agents 5.4 Surfactants 5.5 Biocides and Preservatives 5.6 Enzymes 5.7 Fragrance 5.8 Colourants
EC-03-11	Machine Dishwashing Detergents	5.2 Formulation Requirements	5.3 Complexing Agents 5.4 Surfactants 5.5 Biocides and Preservatives 5.6 Enzymes 5.7 Fragrance 5.8 Colourants

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-22-08	General Purpose Cleaners	5.2 Formulation Requirements	5.3 Solvents 5.4 Surfactants 5.5 Biocides and Preservatives 5.6 Enzymes 5.7 Fragrance 5.8 Colourants
EC-29-09	Toiletry Products	5.2 Formulation Requirements	5.3 Surfactants 5.4 Fragrance 5.5 Colourants 5.6 Preservatives 5.7 Enzymes 6.4 Toothpaste, mouthwash and oral hygiene products
EC-35-11	Commercial and Institutional Dishwasher Detergents	5.2 Formulation Requirements	5.3 Complexing Agents 5.4 Surfactants 5.5 Biocides and Preservatives 5.6 Enzymes 5.7 Fragrance 5.8 Colourants
EC-36-08	Floor Care Products	5.2 Formulation Requirements	5.3 Complexing Agents 5.4 Solvents 5.5 Surfactants 5.6 Biocides and Preservatives

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
			5.7 Fragrance 5.8 Colouring Agents
EC-37-10	Commercial and Institutional Cleaners	5.2 Formulation Requirements	5.3 Solvents 5.4 Surfactants 5.5 Biocides and Preservatives 5.6 Enzymes 5.7 Fragrance 5.8 Colourants
EC-38-08	Commercial and Institutional Laundry Detergents	5.2 Formulation Requirements	5.3 Complexing Agents 5.4 Surfactants 5.5 Biocides and Preservatives 5.6 Enzymes 5.7 Fragrance 5.8 Colourants

Table 2 – Home/Office Decoration

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-04-11	Wool and wool-rich carpet	5.4 Hazardous Substances	5.2.1 Pesticides 5.5.2 Insect resistance treatment 5.5.4 Dyes and Dye Processes 5.5.6 Other chemicals and processes 5.6.3 Flame Retardants
EC-07-09	Paints	5.2.1 Heavy Metals 5.2.3 Crystalline Silica in raw materials 5.2.4 Other hazardous substances	5.2.2 Solvents
EC-28-08	Floor Coverings	5.3.1 General Hazardous Substances 5.3.2 Requirements for Specific Substances	5.3.3 Manufacturing Adhesives 5.3.4 Surface Treatments 5.3.5 Preservative Treatments 5.3.6 Hazardous Substances used in Engineered Wood, Cork or Bamboo
EC-31-11	Textiles, Skins and Leather	5.3.1 All Chemicals and Chemical Preparations	5.3.1 Auxiliaries and Finishing Agents for Fibres and Yarns 5.3.2 Biocidal or Biostatic Products 5.3.3 Weighting 5.3.5 Detergents, Fabric Softeners and Complexing Agents 5.3.6 Bleaching Agents 5.3.7 Dyes and Dye Processes 5.3.8 Halogenated Carriers for Polyester 5.3.9 Printing 5.3.12.1 Flame Retardants

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
			5.3.12.2 Anti-felting Finishes 5.3.12.3 Fabric Finishes 5.3.12.5 Coatings, Laminates and Membranes
EC-32-11	Furniture and Fittings	5.9.1 General hazardous substances	5.2.2 Wood treatments 5.3.2 Hazardous substances used in engineered wood products 5.8.1 Hazardous materials in paddings 5.9.2 Surface treatment of metals 5.9.3 Surface treatment of wood and engineered wood products 5.9.4 Adhesives
EC-33-08	Synthetic Carpets	5.9 Other Compounds	5.6 Dyeing Process 5.8 Adhesives
EC-46-11	Interior Lining Products	5.3.1 General Hazardous Substances	5.2.2.2 Wood treatments 5.2.3.2 Preservative treatment of engineered wood products 5.2.3.3 Hazardous substances in engineered wood products 5.2.9.1 Hazardous materials in padding 5.2.11 Paper/Cellulose Fibre 5.3.2 Manufacturing Adhesives 5.3.3 Surface treatment of metals 5.3.3 Surface treatments of wood and engineered wood
EC-47-11	Wool Scouring Services		5.6 Detergents & Bleaching 5.7 Insect Resist Treatment

Table 3 – Building Materials

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-19-07	Gypsum Plasterboard	5.2 Gypsum Plasterboard	5.3 Manufacturing Process 5.5 Binding Agents, Additives and Agents for Surface Treatment
EC-25-10	Thermal Building Insulants	5.3 Hazardous Substances	5.2.6 EPS, XPS, Polyisocyanurate and Polyurethane
EC-41-09	Long Steel Products for Construction	5.3 Hazardous Substances	
EC-43-10	Ready Mixed Concrete	5.2.4 Hazardous Substances	
EC-51-11	Pre-Mixed Cement	5.2.4 Hazardous Substances	

Table 4 – Paper Products

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-10-07	Packaging and Paperboard		5.3.1 Bleaches 5.3.2 Dyes, Pigments and Coatings 5.3.3 Surfactants and Foam Inhibitors 5.3.4 Cleaning Solvents and Biocides 5.3.5 Adhesives
EC-12-07	Newsprint and Derived Products		5.4.1 Bleaches and Complexing Agents 5.4.2 Dyes, Pigments and Coatings 5.4.3 Surfactants and Foam Inhibitors 5.4.4 Cleaning Solvents and Biocides
EC-13-07	Sanitary Paper Products		5.3.1 Bleaches and Complexing Agents

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
			5.3.2 Dyes, Pigments and Coatings 5.3.3 Surfactants and Foam Inhibitors 5.3.4 Cleaning Solvents and Biocides
EC-26-07	Office Paper and Stationery		5.3.1 Bleaches and Complexing Agents 5.3.2 Dyes, Pigments and Coatings 5.3.3 Surfactants and Foam Inhibitors 5.3.4 Cleaning Solvents and Biocides 5.3.5 Adhesives

Table 5 – Printing and copying

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-17-08	Printing Inks	5.2.1 Substance Characteristics	5.2.2 Heavy Metals 5.2.3 Solvents 5.2.4 Phthalates
EC-24-09	Copying Machines, Printers, Fax Machines and Multifunctional Devices	5.3.4 Chemicals During Production	5.4.1 Toner and Ink
EC-30-05	Toner Cartridges	5.3 Hazardous substances in toner	5.2 Heavy metals in toner 7.1 CFC Use 8.1 Use of azo-colorants
EC-39-08	Printed Matter	5.3.1 Hazard classification 5.3.2 Hazardous substances of particular concern 5.5 Recyclability	5.3.3 Printing inks and toners 5.3.4 Fountain solutions 5.3.5 Cleaning agents 5.3.6 Biocides

Table 6 – Recycled Plastic and Rubber

Specification Number	Specification Title	Relevant Clauses for all substances	Substance-specific clauses
EC-06-01	Recycled Plastic Products		5.4 Coating, Labels and other Treatment
EC-18-09	Recycled Rubber Products	5.3.1 Hazardous Substances	5.3.2 Halogenated Hydrocarbons