Green Label Product
Paper Packaging
(TGL-104-R1-24)

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1. Background

Paper is lightweight, convenient for printing or reshaping to suit the product being packaged. Additionally, it can be recycled and decomposes naturally in a short period, making it one of the packaging materials with the least environmental impact compared to other materials. Furthermore, new innovations in paper packaging development have enhanced its strength and durability, allowing it to better protect goods from potential damage during transport. This has led to paper packaging becoming the most popular choice when compared to other types of packaging. However, the use of paper packaging generates waste. The process of producing paper pulp consumes large amounts of water and energy. Additionally, paper packaging production has environmental impacts due to wastewater generated during the process and the use of various chemicals.

Therefore, the Green Label requirements for paper packaging products, which promote the recycling of paper waste through a circular process, will help reduce the amount of paper waste that becomes trash, decrease water and energy consumption in the production process, and minimize the environmental impacts caused by chemicals and wastewater used in production.

2. Scope

This criteria covers Packaging materials and packaging made from paper, intended for the purpose of containing, protecting, and preserving the contents, facilitating transportation, and providing marketing and usability benefits. This also includes packaging materials and packaging that come into direct contact with food.

3. Definitions

3.1 Paper packaging: The packaging made from paper, designed for the purpose of gathering, protecting, and preserving the contents inside, facilitating transportation, and providing benefits for marketing and usage.

3.2 **Paper for cooking food with heat:** Paper, cardboard, and paper containers are intended for wrapping, packaging, and holding food. They are designed for filtering hot liquids, warming, or cooking food using heat or microwave waves, such as baking, steaming, and boiling.

3.3 **Container made from paper pulp:** Containers made from molded pulp that are then dried

3.4 **Food-contact paper:** Paper, cardboard, and paper containers intended for wrapping, packaging, collecting, or holding food.

3.5 **Paper container** Containers used for holding or supporting food, such as plates, bowls, trays, cups, boxes, and bags, made from paper or cardboard, including containers made from molded pulp.

3.6 **Hot filling:** Food packaging in which the food is filled into containers at a temperature not exceeding 100°C, with the temperature decreasing by no more than 50°C within 60 minutes, or the temperature decreasing to no more than 30°C within 150 minutes.

3.7 **Paper used for filtering hot liquids:** Paper, cardboard, or paper containers used for filtering hot liquids, such as tea bags and coffee filters.

3.8 **Paper used for warming or cooking food:** Paper, cardboard, or paper containers used for warming or cooking food in an oven or microwave.

3.9 **Unitized packaging:** Packaging used to contain paper packaging products.

3.10 **Virgin pulp:** Pulp made from plant fibers that have never been used to make paper, cardboard, or other products before.

3.11 **Recycled pulp:** Pulp derived from used paper, cardboard, paper containers, or scraps from the paper, cardboard, or paper container processing, which has undergone recycling processes such as pulp dispersion, washing, and cleaning.

3.12 **Post-consumer waste paper:** Pulp derived from used paper, cardboard, paper containers, or scraps from the paper, cardboard, or paper container processing, which has undergone recycling processes such as pulp dispersion, washing, and cleaning.

3.13 **Pre-consumer waste paper, internal scrap, clean waste:** Waste paper that occurs during the paper production and processing stages within the factory before reaching the consumer, including both dry broke and wet broke paper.

3.14 **Agricultural residues:** Agricultural waste that can be processed into raw materials for manufacturing or used as fuel to generate energy.

3.15 **Envelope:** Paper envelope products manufactured for packaging general documents or for mailing purposes. Paper envelopes include those used for packaging items and product prices (commercial catalog purpose), expandable envelopes, envelopes for shipping documents for export and return to the recipient (outbound/return envelopes), and envelopes for various documents**.**

3.16 **Tray:** A container for holding items with edges all around, low and flat in shape.

3.17 **Kraft paper:** Paper that is suitable for wrapping items, making bags, or creating the surface of corrugated cardboard boxes.

3.18 **Corrugated medium:** Corrugated paper that has been fluted, used as a layer between the linerboard sheets of corrugated cardboard.

3.19 **Corrugated fiberboard box:** Rigid packaging container with a lid, made from corrugated cardboard.

3.20 **Paperboard:** Boxboard and cardboard designed for single-side or double-side printing, including grayboard for making book covers or file covers.

3.21 **Paperboard box, individual package:** Cardboard boxes used for packaging individual products for commercial purposes.

3.22 **Shock-absorbing material:** Materials used to protect goods from damage due to heavy impacts and/or vibrations during transportation, handling, and shipping.

3.23 **Moulded pulp containers:** Three-dimensional materials or containers formed by molding paper pulp into the desired shape.

3.24 Letter for Declaration of Compliance: A certification document issued by the applicant or manufacturer confirming compliance with the special requirements specified in the Green Label criteria for the product being applied for.

3.25 Certificate: A document issued by a Certification Body accredited by the Office of the National Standardization Council (ONSC) or an Accreditation Body under the mutual recognition agreements of the International Accreditation Forum (IAF).

3.26 Legally Authorized person: A person authorized to sign under the Civil and Commercial Law.

4. General requirements

4.1 The product must be certified according to the relevant industrial product standards, or meet the required characteristics through testing in accordance with the relevant industrial product standards, international standards, or equivalent national standards, or other applicable standards.

Remark: In the case of manufacturing packaging using paper for food contact, it must undergo physical property testing according to relevant industrial product standards.

Verification method

The applicant shall submit evidence of the license displaying the industrial product standards mark, **or** test results according to the relevant industrial product standards, or test results according to international standards, equivalent national standards, **or** other applicable standards

4.2 The factories that produce or process food-contact paper and the factories that manufacture food-contact paper containers must be certified and comply with good hygiene practices (Good Hygiene Practice: GHP) for the production of paper, cardboard, and food-contact paper containers.

Remark: In cases where criteria and best practices for manufacturing paper, cardboard, and paper-based food contact containers have not yet been established, it is acceptable to apply Hazard Analysis and Critical Control Points (HACCP), certification from the British Retail Consortium (BRC), ISO 22000, or FSSC 22000.

Verification method

The applicant shall submit a license or evidence that the factory is certified and complies with good hygiene practices (Good Hygiene Practice: GHP) for the production of paper, cardboard, and food-contact paper containers.

In cases where there are no established critical and methods for the production of paper, cardboard, and food-contact paper containers, the use of Hazard Analysis and Critical Control Points (HACCP) and certification from the British Retail Consortium (BRC), or ISO 22000, or FSSC 22000, may be applied.

4.3 Manufacturing, transportation and post-industrial waste disposal shall comply with national laws and regulations or the manufacturer shall be accredited by ISO14001[1].

Verification method

The applicant shall submit one of the following documents:

1. License or evidences to prove that manufacturing, transportation, and post-industrial waste disposal complies with national laws and regulations.
2. Certification of ISO 14001 from the manufacturer

   Remark: In case of imported products, the factory must be certified with ISO 9001 (Quality Management System) and ISO 14001 (Environmental Management System).

5. Environmental Requirement

5.1 Paper packaging must comply with one of the following requirements

5.1.1 The product must be made from recycled pulp and/or pulp derived from agricultural waste materials as shown in Table 1.

Table 1: The quantity of recycled pulp and/or pulp derived from agricultural waste materials.

Product Type.	Recycled pulp and/or pulp made from agricultural waste materials (percentage by weight)
Shock-absorbing material	≥ 70
Tray	≥ 75
Paperboard box, individual package	≥ 70
Corrugated fiberboard box	≥ 60
Writing paper envelopes	≥ 20

[1] ISO 14001: Environmental management system.

Product Type.	Recycled pulp and/or pulp made from agricultural waste materials (percentage by weight)
Kraft paper envelopes	≥ 50
Moulded paper products	≥ 90
Other packaging products	≥ 40

Verification method

The applicant shall submit evidence showing the percentage of recycled pulp and/or pulp made from agricultural waste materials. The evidence must be signed by the managing director or an authorized signatory of the manufacturing company, or an authorized signatory according to the corporate registration certificate of the applicant's company, and affixed with the company's official seal.

5.1.2 Food contact paper and paper containers intended for food contact must be made from virgin pulp certified under sustainable forest management standards such as FSC[2], PEFC[3], TFCC[4], MTCh 14061, or other equivalent standards. Additionally, the paper must include at least 10% pre-consumer waste paper and/or pulp derived from agricultural waste materials. It must not be made from or contain the following types of paper:

(1) Paper sourced from healthcare facilities, such as hospitals and clinics.
(2) Paper mixed with municipal waste or separated from municipal waste
(3) Paper sacks or paper bags contaminated with chemicals or food, such as cement bags.
(4) Paper used to cover or wrap other materials, such as paper used to cover furniture during repair, painting, or construction work.
(5) Carbon paper, Carbonless copy paper, Heat-sensitive copy paper.
(6) Used sanitary paper, such as facial tissue, paper hand towel, toilet paper, and multipurpose paper.

[2] FSC: Forest Stewardship Council is an international organization that promotes and supports responsible forest management worldwide. It ensures environmental responsibility, benefits for society, and sustainable economic management.

[3] PEFC: Programme for Endorsement of Forest Certification is an international non-profit organization established in 1999 in France, Europe. Its headquarters are now located in Geneva, Switzerland. The organization aims to promote sustainable forest management, similar to the goals of the FSC.

[4] TFCC: Thailand Forest Certification Council is to support the use of Thailand's sustainable economic timber management standards.

Verification method

The applicant shall submit evidence showing the percentage of recycled pulp and/or pulp made from agricultural waste materials. The evidence must be signed by the managing director or an authorized signatory of the manufacturing company, or an authorized signatory according to the corporate registration certificate of the applicant's company, and affixed with the company's official seal.

5.2 The product must have the following characteristics:

5.2.1 Contains azo dyes that release aromatic amines as listed in Table 2, with each substance not exceeding 30 milligrams per kilogram.

Table 2: Aromatic Amines

No.	Aromatic Amines (CAS No.)	No.	Aromatic Amines (CAS No.)
1	4-Aminodiphenyl (92-67-1)	13	4,4'-Methylenedi-*o*-Toluidine (838-88-0)
2	Benzidine (92-87-5)	14	*p*-Cresidine (120-71-8)
3	4-Chloro-*o*-Toluidine (95-69-2)	15	4,4'-Methylene-bis-(2-Chloro-Aniline) (101-14-4)
4	2-Naphthylamine (91-59-8)	16	4,4'-Oxydianiline (101-80-4)
5	*o*-Aminoazotoluene (97-56-3)	17	4,4'-Thiodianiline (139-65-1)
6	5- Nitro-*o*-Toluidine (99-55-8)	18	*o*-Toluidine (95-53-4)
7	4-Chloroaniline (106-47-8)	19	4-Methyl-*m*-Phenylenediamine (95-80-7)
8	4-Methoxy-*m*-Phenylenediamine (615-05-4)	20	2,4,5-Trimethylaniline (137-17-7)
9	4,4'-Diaminodiphenylmethane (101-77-9)	21	*o*-Anisidine (90-04-0)
10	3,3'-Dichlorobenzidine (91-94-1)	22	2,4-Xylidine (95-68-1)
11	3,3'-Dimethoxybenzidine (119-90-4)	23	2,6-Xylidine (87-62-7)
12	3,3'-Dimethylbenzidine (119-93-7)	24	4-Aminoazobenzene (60-09-3)

Verification method

The applicant shall submit test results for azo-based dyes in the product, using the test methods specified in the EN 14362[5] standard or other equivalent standards capable of testing azo-based dyes in the product.

5.2.2 The amount of AOX (Adsorbable Organic Halogen) allowed must not exceed 0.12 kg/ADT paper.

Verification method

The applicant must submit test results for AOX in the product, using the test methods specified in the ISO 9562[6] standard or other equivalent standards capable of testing AOX in the product.

[5] EN 14362: Textiles-Methods for determination of certain aromatic amines derived from azo colorants.
[6] ISO 9562: Water quality-Determination of adsorbable organically bound halogens (AOX).

5.3 Prohibited Substances in Raw Materials and Production Processes

5.3.1 Bleaching agent
- Chlorine (Cl_2) compound
- Ethylenediaminetetraacetic acid (EDTA)
- Diethylenetriaminepentaacetic acids (DTPAs)

5.3.2 Surfactants
- Alkylphenolethoxylates (APEOs)
- Alkyl phenol derivatives (APDs)

5.3.3 Other substances
- Phthalate
- Halogenated hydrocarbons
- Bisphenol-A

Verification method

The applicant shall submit a reliable certification confirming that the substances used in the raw materials and production processes comply with the specific requirements of Clause 5.3. This certification must be signed by the Managing Director or an authorized signatory of the applicant company, or the authorized signatory as per the company's legal certification, and affixed with the company's official seal.

5.4 The ink, colorants, or pigments used in products or printed on product labels must not contain heavy metals as ingredients. In case of contamination, the allowed maximum concentration of heavy metals, including mercury, lead, cadmium, and hexavalent chromium, is 0.01% (≤100 mg/kg) by weight. Alternatively, natural inks or water-based inks that break down into aromatic amines, as listed in Table 2, can be used, with each substance not exceeding 30 milligrams per kilogram.

Verification method

The applicant shall submit one of the following documents:

1. A certificate and test results for the concentrations of mercury, lead, cadmium, and hexavalent chromium issued by the colorant manufacturer. **or**
2. Test results for the concentrations of mercury, lead, cadmium, and hexavalent chromium, tested according to the following specified testing methods.
   2.1 Mercury concentration tested according to the testing methods specified in ISO 3856-7[7], or ASTM D 3624[8], or IEC 62321, or EN 12497, or any other method capable of determining mercury content.
   2.2 Lead concentration tested according to the testing methods specified in

[7] ISO 3856-7: Paints and varnishes - Determination of soluble metal content - Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilatable paints.
[8] ASTM D 3624: Standard Test Method for Low Concentrations of Mercury in Paint.

ISO 3856-1[9], or ISO 6503[10], or ASTM D 3335[11], or IEC 62321, or EN 12498, or any other method capable of determining lead content.

2.3 Cadmium concentration tested according to the testing methods specified in ISO 3856-4[12], or ASTM D 3335, or IEC 62321, or EN 12498, or any other method capable of determining cadmium content.

2.4 Hexavalent chromium concentration tested according to the testing methods specified in ISO 3856-5[13], or IEC 62321, or EN 12498, or any other method capable of determining hexavalent chromium content.

3. A reliable certificate confirming that the applicant is using natural ink, which must be signed by the managing director or an authorized signatory of the applicant company, or the authorized signatory as per the company's legal certification, and affixed with the company's official seal.

In the case of using water-based ink.

The applicant shall submit test results for Azo-based dyes in the product, according to the testing methods specified in the EN 14362 standard or any other method capable of testing Azo-based dyes in the product.

5.5 Packaging used for unit grouping.

5.5.1 Packaging made from paper must be made from at least 60% by weight of recycled fiber.

Verification method

The applicant shall submit a reliable certificate confirming that the paper packaging is made from at least 60% by weight of recycled fiber. The certificate must be stamped with the company's official seal and signed by the authorized signatory of the packaging manufacturer.

5.5.2 Plastic packaging must contain at least 20% by weight of recycled material and must feature a symbol indicating the type of plastic according to the industrial product standard for recycled plastics, Thai Industrial Standard (TIS) 1310, or include the abbreviated designation indicating the type of plastic as specified in ISO 1043 or ISO 11469.

[9] ISO 3856-1: Paints and varnishes - Determination of soluble metal content - Part 1: Determination of lead content.
[10] ISO 6503: Paints and varnishes -- Determination of total lead -- Flame atomic absorption spectrometric method.
[11] ASTM D 3335: Standard Test Method for Low Concentrations of Lead, Cadmium, and Cobalt in Paint.
[12] ISO 3856-4: Paints and varnishes - Determination of soluble metal content - Part 4: Determination of cadmium content.
[13] ISO 3856-5: Paints and varnishes - Determination of soluble metal content - Part 5: Determination of chromium hexavalent content of the pigment portion of the liquid paint or the paint in powder.

Verification method

The applicant shall submit a reliable certificate confirming that the plastic packaging contains at least 20% by weight of recycled material and features a symbol indicating the type of plastic according to the industrial product standard for recycled plastics, Thai Industrial Standard (TIS) 1310, or ISO 1043 or ISO 11469. The certificate must be stamped with the company's official seal and signed by the authorized signatory of the packaging manufacturer, along with a photograph showing the symbol indicating the type of plastic on the packaging.

5.5.3 Inks, colors, or pigments used for printing on packaging or labels attached to packaging must not contain heavy metals as ingredients. In case of contamination, the allowed concentration of heavy metals, including mercury, lead, cadmium, and hexavalent chromium, combined, must not exceed 0.01% (≤100 mg/kg) by weight. Alternatively, natural inks or water-based inks that break down into aromatic amines as listed in Table 2 may be used, with each substance not exceeding 30 milligrams per kilogram.

Verification method

The applicant shall submit one of the following documents:

1. A certificate and test results for the concentrations of mercury, lead, cadmium, and hexavalent chromium issued by the colorant manufacturer. **or**
2. Test results for the concentrations of mercury, lead, cadmium, and hexavalent chromium, tested according to the following specified testing methods.
   - 2.1 Mercury concentration tested according to the testing methods specified in ISO 3856-7[14], or ASTM D 3624[15], or IEC 62321, or EN 12497, or any other method capable of determining mercury content.
   - 2.2 Lead concentration tested according to the testing methods specified in ISO 3856-1[16], or ISO 6503[17], or ASTM D 3335[18], or IEC 62321, or EN 12498, or any other method capable of determining lead content.
   - 2.3 Cadmium concentration tested according to the testing methods specified in ISO 3856-4[19], or ASTM D 3335, or IEC 62321, or EN 12498, or any other method capable of determining cadmium content.
   - 2.4 Hexavalent chromium concentration tested according to the testing methods specified in ISO 3856-5[20], or IEC 62321, or EN 12498, or any other method capable of determining hexavalent chromium content.
3. A reliable certificate confirming that the applicant is using natural ink, which must be signed by the managing director or an authorized signatory of the applicant company, or the authorized signatory as per the company's legal certification, and affixed with the company's official seal.

In the case of using water-based ink.

The applicant shall submit test results for Azo-based dyes in the product, according to the testing methods specified in the EN 14362 standard or any other method capable of testing Azo-based dyes in the product.

[14] ISO 3856-7: Paints and varnishes - Determination of soluble metal content - Part 7: Determination of mercury content of the pigment portion of the paint and of the liquid portion of water-dilatable paints.
[15] ASTM D 3624: Standard Test Method for Low Concentrations of Mercury in Paint.
[16] ISO 3856-1: Paints and varnishes - Determination of soluble metal content - Part 1: Determination of lead content.
[17] ISO 6503: Paints and varnishes -- Determination of total lead -- Flame atomic absorption spectrometric method.
[18] ASTM D 3335: Standard Test Method for Low Concentrations of Lead, Cadmium, and Cobalt in Paint.
[19] ISO 3856-4: Paints and varnishes - Determination of soluble metal content - Part 4: Determination of cadmium content.
[20] ISO 3856-5: Paints and varnishes - Determination of soluble metal content - Part 5: Determination of chromium hexavalent content of the pigment portion of the liquid paint or the paint in powder.

6. Testing and certificate

6.1 Testing

6.1.1 The laboratory with the competence of testing and calibration by TIS 17025 Standard or ISO/IEC 17025 with the relevant scope or laboratories that with the criteria and conditions for laboratory registration (RR-203) will be accepted.

6.1.2 Test results

6.1.2.1 The testing report that the method specified in the Green Label requirements

6.1.2.2 In case, the applicant submits the testing report with according to other test methods equivalent to the method specified in the green label requirements, the applicant shall submit the document as follow;

1) The certified signature document of the apply product from the laboratory that equivalent with test method standard specified in the green label requirements
2) The validation of the method (Validation Method) used by the applicant to test the product, compared to the testing methods specified in the Green Label requirements

6.1.2.3 The test report must not be more than 1 years up to the date of application for green label certification

6.2 Declaration letter to verify compliance with Green label requirements

6.2.1 Shall have been issued no more than 1 year following the application date.

6.2.2 Shall be signed by the authorized directors and have the company seal affixed (if relevant)

7. Issues for the next revision.

1. Eco-design from the outset to facilitate waste segregation.
2. Substances used in the production process should include regulations regarding Per- and Polyfluoroalkyl Substances (PFAS).