

TGL-9-R1-06

Sprays

1. Rationale

As a party to the Montreal Protocol (1987), Thailand has agreed to discontinue the use of Chlorofluorocarbons (CFCs) by 2010. At present, CFCs are no longer used in the spray industry. However, substitutes which have non-zero ozone depleting potential (ODP) and global warming potential (GWP) are still used, albeit in low amounts.

Substances with an ODP value of more than zero have the potential to destroy ozone, a substance crucial in filtering ultraviolet (UV) radiation, creating holes in the ozone layer. Holes in the ozone layer permit more UV radiation to reach the earth's surface, resulting in an increase in health threats such as skin cancer, eye damage, and other conditions. UV radiation can also destroy hormones, chlorophylls, and other chemicals which are important in photosynthesis, resulting in a reduction in the amount of biomass produced by plants and forests. Substances with a GWP value of more than zero contribute to the increase in global temperatures. As a result, the promotion of sprays made with substances with zero ODP and GWP values can help alleviate the problems of ozone depletion and global temperature rise.

2. Category Definitions

Spray products here includes only:

2.1 Sprays for household use, limited to sprays used for cleaning cassette tapes and videos, glass cleaners, and air deodorizers.

2.2 Sprays for car care, limited to demoisurant sprays, lubricant sprays, belt dressing sprays, penetrating sprays, and sprays used to clean internal car parts.

2.3 Sprays for personal care, limited to deodorants, body sprays, mouth sprays, foot sprays, anti-perspirant sprays, hair sprays, hair mousses, mineral sprays, and refreshing sprays.

2.4 Sprays for protection, limited to fire extinguishers.

2.5 Industrial sprays, limited to demoisurizers, mould release sprays, contact cleaner sprays, and adhesive sprays.

Note: Some types of sprays, such as spray paint, air-conditioning sprays, and pesticide sprays, have now switched to using other substitutes for CFCs so they are not eligible to be awarded Green Labels.

3. Definitions

The term '*spray*' here refers to products with liquid contents in containers with gas or liquefied gas or air as propellants, or contained in containers with mechanical pumps as propellants.

The term '*package*' here refers to containers for products, made from aluminium or aluminium alloy or tinplates or other appropriate materials.

The term '*propellants*' here refers to substances that are added to generate spraying power of more than 760 mmHg (1 atmosphere) at a temperature of 40.6 degrees Celcius.

The term '*ozone depleting substance*' (ODS) here refers to chemicals with Chlorine or Bromine and Halon, which destroy ozone in the ozone layer.

The term '*global warming potential*' (GWP) here refers to the index that takes into account the total amount of time different greenhouse gases remain in the atmosphere over different time horizons and the relative efficiency in infrared absorption. GWP is a measure of how much each greenhouse gas contributes to global warming when compared with Carbon dioxide of the same mass. (Carbon dioxide has a GWP of 1. Methane has a GWP of 2.1. This means that 1 ton of Methane has the same potential to increase warming as 21 tons of Carbon dioxide.)

4. General Requirements

4.1 Spray products must have the following desirable properties:

- (1) Must not cause irritation to the skin (for personal care sprays only).
- (2) Must not contain hazardous substances or use materials prohibited from being ingredients in the production of cosmetics according to the Ministry of Health Declaration No. 9 (BE 2536), in accordance with the Cosmetics Act (B.E. 2535) (appendix) and future revisions.
- (3) Must be in good condition.
- (4) When all used, must leave no more than 2 percent by weight of the product in the package.
- (5) Must have at least 15 percent head space in the package, or the product volume must be no more than 85 percent of the total package volume.
- (6) Distortional pressure resistance: all types of packages must be able to withstand pressure of 1.2 Mega-Pascal for 1 minute without being swollen, deformed, or resulting in leakages.
- (7) Pressure burst resistance: all types of packages must be able to withstand pressure of 1.8 Mega-Pascal for 1 minute without leaking or bursting.

4.2 Production, transportation, and waste disposal must be in accordance with all applicable government acts and regulations.

5. Product Specific Requirements

5.1 Must not use propellants with ODP values and/or GWP values of more than zero.

5.2 Instructions for use and proper waste disposal after use must be clearly indicated on the product packaging.

5.3 The mobius loop symbol must be placed on the packaging to encourage recycling.

5.4 For adhesive sprays, the amount of volatile organic compound (VOC) used as ingredients in the product must be no more than 70 percent by weight, not including water.

6. Testing Methods

6.1 Testing for desirable properties of the sprays

- (1) Skin irritation tests shall be in accordance with the Thai Industrial Standard for Cosmetics: General Requirements, TIS 152, or tests which do not involve animals can be used if appropriate academic references are given.
- (2) Testing for product condition. Product test results for conditions such as smell after leaving the product for 6 months, can be submitted complete with the signature of the Managing Director. The document(s) shall be submitted to Green Label officers.
- (3) Testing for spraying power. Show the weight of the container before (W1) and after filling the container with chemicals up to the volume indicated (W2). After spraying the contents until no pressure is left in the container, weigh the container once again (W3). Then calculate the percentage of the chemicals left in the container using the following formula: $[(W3-W1)*100/(W2-W1)]$ or equivalent testing procedures can be used. All documents must bear the signature of the Managing Director of the company.
- (4) Testing for head space in the container can be done using x-rays, and then calculating the volume of the head space from the x-ray films according to ASTM D 3091 or show the specific gravities for the chemicals, the ratio of chemicals to propellants, percentage of the different chemicals, volume of the container (grams) and calculate the volume of the container. All documents submitted must bear the signature of the company's Managing Director.
- (5) Distortional pressure resistance test should be in accordance with the Thai Industrial Standard for Aerosol cans, TIS 974 or equivalent national standards or submit certification verifying the qualities of the packaging can received from the manufacturer of the can.
- (6) Pressure burst resistance test should be in accordance with the Thai Industrial Standard for Aerosol cans, TIS 974 or equivalent national standards or submit certification verifying the qualities of the packaging can received from the manufacturer of the can.

6.2 The manufacturer must submit evidence listing the names of the chemical components used as propellants and their amounts or submit certificates certifying that the chemicals used do not contain substances listed in 4.1 no. (2), signed by the Managing Directory, or authorized party within the company.

6.3 Testing for product specific requirements for sprays.

- (1) CFCs, 1,1,1-trichloroethane, Perchloroethane and Halon must be tested using gas chromatography according to USP 23 or an equivalent testing method. The test results must not contain propellants indicated in the Product Specific Requirements no. 5.1.

In the event of any conflict arising, the original criteria in Thai is to be final authority

- (2) Labels with usage instructions to be pasted onto the sprays, or a sample of the label that will be used after the product has been approved for Green Label shall be submitted to Green Label officers for consideration.
- (3) Sample containers with the recycle symbol must be submitted to Green Label Officers for consideration.

6.4 The manufacturer shall submit documents indicating the amount of VOC contained in the product, signed by the Managing Director or authorized party in the company.

Note 1. Applicants for Green Label can submit test results for tests listed in 6.1 (1) to (6) to Green Label officers, but they must be signed by the spray manufacturer's Managing Director and the Managing Director of the company submitting the Green Label application. In the event that the spray manufacturer and Green Label applicant are the same company, the signature of the company's Managing Director is required, but the results from test 6.3 (1) must be obtained from government laboratories or independent laboratories, which have been certified according to the general requirements for the competence of testing and calibration laboratories, TIS 17025 (ISO/IEC 17025) or independent laboratories, which received ISO 9001:2000 certification

2. Sampling methods, usage, and criteria for normal cosmetics (except smell - perfumes) must be in accordance to TIS 152. Only zero will be accepted.