GREEN CHOICE PHILIPPINES

NELP-GCP-2008033
SYNTHETIC LAUNDRY DETERGENT

1. ENVIRONMENTAL SCENARIO

Synthetic laundry detergents are used in a wide scale as a cleaning agent in most commercial/industrial establishment and homes. The major active components in laundry detergents are surfactants and builders. Detergent components, such as surfactants, provide a significant load on sewage systems where it may accumulate and become toxic or otherwise harmful in the environment. Builders on the other hand serve to overcome water hardness and improve surfactant performance. Tripolyphosphate is the most commonly used builder. Soda ash (a sodium carbonate) is also used as a builder and source of alkaline reserve. It is important to note that builders increase the efficiency of the surfactant, reducing the amount of surfactant needed. Such additives can be justified since their exclusion may be counterproductive.

Other components in laundry detergent may include bleaches, fluorescent whitening agents, preservatives, dyes, solvents, fillers, perfumes, corrosion inhibitors and enzymes. Some of these ingredients, such as enzymes, contribute to the performance of the detergent. Some have other purposes such as corrosion inhibition, while others were merely cosmetic.

The key environmental impact in the life cycle of detergent is in the use and discharge of product causing pollution to soil and water. Reduction of this environmental impact calls for the reduction of harmful chemicals used.

2. DEFINITION OF TERMS

2.1. BUILDER

Any substance intended to maintain alkalinity, and/or bind calcium and magnesium ions (soften the water), and/or keep the soil in suspension, increasing the effectiveness of the detergent. It includes substances such as phosphates, NTA, EDTA, zeolites, sodium citrate, sodium silicate and sodium carbonate.

2.2. CHEMICAL CONTROL ORDER

Prohibits, limits, and regulates the use, manufacture, import, export, transport, processing, storage, possession and wholesale of priority chemicals.

2.3. DENR ADMINISTRATIVE ORDER 2005-05 (DENR AO 2005-05)

Toxic Chemical Substances for Issuance of Chemical Control Orders

2.4. DENR ADMINISTRATIVE ORDER 2005-27 (DENR AO 2005-27)

Revised Priority Chemical List

2.5. FRAGRANCE AND COLORING

Refers to organic substances added primarily for aesthetic reasons, to give color and smell.

2.6. HAND WASH DETERGENT

Laundry product used for hand-scrubbing wash.

2.7. HARD SURFACTANTS

Refers to surfactants with low biodegradability rate, including chemicals such as hard or branded alkyl benzene; hard or branched alkyl benzene surfactants hard or branded dodecyl benzene sulfonates; branched dodecyl benzene, their sodium or potassium salts and other technical names referring to the same chemical compound.

2.8. IMPORTATION

Refers to the entry of a product or substance into the Philippines (through the seaports or airports of entry) after having been properly cleared through or still remaining under customs control, the product or substance of which is intended for direct consumption, merchandising, warehousing, for further processing.

2.9. LAUNDRY SOAP/LAUNDRY DETERGENT

Shall refer to a product containing a surfactant and other ingredients, formulated to clean and care for the many different fabrics.

2.10. MACHINE WASH DETERGENT

Laundry product used with a washing machine

2.11. pH

Refers to the acidity or alkalinity of a solution. Aqueous solutions at 25°C with a pH less than 7 (seven) are considered acidic, while those with a pH greater than 7 (seven) are considered basic (alkaline).

2.12. PRESERVATIVES

Refers to the substances added to prevent the growth of microorganisms which will reduce the shelf life of the products.

2.13. PRIORITY CHEMICALS LIST (PCL)

Is a list of existing and new chemicals that the DENR has determined to potentially pose unreasonable risk to public health, workplace, and to the environment.

2.14. PROCESS

Refers to the preparation of a chemical substance or mixture after its manufacture for commercial distribution:

1. In the same form or physical state or in a different form or physical state from that which it was received by the person so preparing such substance or mixture; or
2. As part of an article containing a chemical substance or mixture.

2.15. REPUBLIC ACT 6969 (RA 6969)

Toxic Substances, Hazardous and Nuclear Waste Control Act

2.16. REPUBLIC ACT 8970 (RA 8970)

Ban HABS Law

2.17. SURFACTANT or SURFACE ACTIVE AGENT

Any substance intended to reduce surface tension, thereby helping water to surround soils from surfaces.

2.18. SYNTHETIC LAUNDRY DETERGENT

A product containing a surfactant and other ingredients, formulated to clean and care for the many different fabrics.

2.19. TOXIC WASTES

Toxic wastes are wastes that are considered poisonous and have carcinogenic, mutagenic, or teratogenic effects on human or other life forms.

2.20. TRANSPORT

Includes conveyance used in air, water and land.

2.21. UNREASONABLE RISK

Means expected high frequency of undesirable effects or adverse responses arising from a given exposure to a substance.

3. SCOPE

These criteria shall apply to synthetic laundry detergents for hand wash, machine wash and soaking laundry purposes, in powder, bar or liquid form.

4. GREEN CHOICE REQUIREMENTS

4.1. Product Quality Performance

- Products shall be of high quality and perform well in their intended application. The products must ensure its suitability for its intended use and relevance.
- The product shall comply with the performance requirements of the relevant Philippine National Standard for its intended application as indicated in Table 1 or other internationally accepted standard.

Table 1 – Applicable Philippine National Standards for Laundry Detergents

Standard No.	Title
PNS 23:2002	Surface Active Agents – Synthetic Detergents for Laundry Use – Specifications

4.2. Product Environmental Performance

4.2.1. Compliance to Environmental Regulations

The applicant is required to comply with relevant environmental legislations this includes production process, transport and disposal features of the product.

4.2.2. Surfactants

- The product shall not contain any hard surfactants defined in RA 8970.

- Alkyl phenol ethoxylates (APEO) and alkyl phenol derivates (APD) shall not be added to the product.

4.2.3. Preservatives

- The use of preservatives for purposes other than preservation is not allowed.
- Preservatives shall not be bioaccumulative. The requirement is imposed in order to reduce the environmental impact associated with the use of preservatives since they are often highly toxic to water- borne organisms. The product shall not be formulated with the following preservatives and its derivatives:
    - 1,2-benzisothiazolin-3-one such as proxel
    - 2,4-dichlorobenzyl alcohol
    - chloracetamide
    - 5-chloro-2-methyl-4-isothiazolin-3-one such as kathon CG
    - orthophenylphenol
    - orthononylphenol
    - trichlorohydroxydiphenyl ether such as irgasan, triclosan

4.2.4. Builders

- The product shall not contain nitrilotriacetate (NTA) and Diethylene triamine pentaacetic acid (DTPA).
- Ethylene diamine tetraacetic acid (EDTA) and phosphonates shall not exceed 0.1%.

4.2.5. Fragrance

- The product shall not contain any substances listed in ASEAN Cosmetic Harmonization or its equivalent.
- The essence containing the following nitro-musk compounds shall not be used because of their carcinogenicity, the following substances are:
    - Musk xylene
    - Musk ambrette
    - Moskene
    - Musk tibetine
    - Musk ketone

4.2.6. UV absorbers

The UV absorbers shall not be formulated with benzophenone.

4.2.7. Formaldehyde

The product shall not contain more than 0.1% by weight of the product.

4.2.8. pH Regulators

The pH regulator shall not be formulated with boric acid, borates and perborates.

4.2.9. Other Harmful Substances

The product shall not be formulated or manufactured with the following substances and its derivatives:

- Chlorine and chlorine compounds
- Methyl Dibromoglutaronitirile (MG)
- Opacifiers
- Quaternary ammonium salts that are not readily degradable
- Trichloroethane
- Xylene sulfonates
- 2-Butoxyethanol
- Phthalates
- Substances listed in DENR AO 2005-05 and DENR AO 2005-27

4.2.10. Retrieval Program

Applicant shall retrieve at least 5% by weight of the packaging material used based on the annual sales.

4.3. Other Criteria

4.3.1. Label

The product shall comply with the requirements of RA 8970 and PNS 23:2002.

4.3.2. Packaging

- In case of plastic packaging, this must have a sign indicating the kind of plastic used for producing the package.
- If the product is in liquid form, its packaging shall be capable of long-term repeated uses. The consumers shall also be provided with easily refillable packaging or container.

5. EVALUATION AND VALIDATION

PRODUCT CRITERIA	EVALUATION AND VALIDATION METHOD
4.1 PRODUCT QUALITY PERFORMANCE	
4.1.1 Product Quality Standard	The applicant shall submit a certification from recognized/ accredited laboratories and/or accreditation bodies*.
4.2 PRODUCT ENVIRONMENTAL REQUIREMENTS	
4.2.1 Compliance to Environmental Regulations	The applicant shall submit applicable licenses and permits indicating the manufacturer's compliance with agreements on environmental regulations applicable to the area where the plant is located.**
4.2.2 Surfactants	The applicant shall submit a certification from recognized/accredited laboratories*.
4.2.3 Preservatives	
4.2.4 Builders	
4.2.5 Fragrance	
4.2.6 UV Absorbers	
4.2.7 Formaldehyde	
4.2.8 Other Harmful Substances	
4.2.9 Retrieval Program	The applicant shall submit annual sales report and program documentation reflecting 5% by weight of packaging used was retrieved.** See annex for sample computation.
4.3 OTHER CRITERIA	
4.3.1 Label	The applicant shall submit a portfolio and statement in writing signed by the Chief Executive Officer or an authorized representative officer or an authorized representative of the company and shall be accompanied by the relevant documentations and samples.**
4.3.2 Packaging	

* Laboratories accepted by national or international accreditation bodies such as the Asia Pacific Laboratory Accreditation Cooperation (APLAC) or International Laboratory Accreditation Cooperation (ILAC)

** Notarized Documents

6. PERIOD OF VALIDITY

The product criteria shall take effect for three (3) years from the date of its approval, and subject to change or withdrawal by the *NELP-GCP Board*, if necessary, at any period of time.

References:

ASEAN Harmonized Cosmetic Regulatory Scheme

DENR Administrative Order 2005-05: Toxic Chemical Substances for Issuance of Chemical Control Orders

DENR Administrative Order 2005-27: Revised Priority Chemical List
Republic Act 6969: Toxic Substances, Hazardous and Nuclear Waste Control Act

Good Environmental Choice Australia Ltd: The Australian Ecolabel Program- Australian Voluntary Environmental Labelling Standard: Shampoo, Body Shampoo, Liquid and Solid Soap Products; GECA 22-2004.

International Agency for Research on Cancer. (2007, November 29). *IARC Monographs - Classifications - Group2B.* Retrieved February 7, 2008, from International Agency for Research on Cancer Web Site: http://monographs.iarc.fr/ENG/Classification/crthgr02blist.php

International Fragrance Association - Code of Practice (2006)

Japan Environment Association; Eco Mark Product Category No. 64: Liquid Soap Certification Criteria.

Nordic Ecolabelling; Swan Labelling of Shampoo, Conditioner, Body Shampoo, Liquid and Solid Soap.

Thai Green Label Scheme: Thai Green Label Products: TGL-24-99: Soap

ANNEX
RETRIEVAL PROGRAM

Given that the weight of a packaging material for a 100g product is 5g, the weight of the packaging is 5% that of the product net weight. The retrieval is calculated as follows:

Wt. Packaging material to be retrieved:

$$\%\ \text{Required Retrieval} \times \text{Wt. Product Sold} \times \frac{\text{Wt. of Packaging per Unit of Product}}{\text{Net Wt. per Unit of Product}}$$

$$\text{Wt. Packaging Material to be Retrieved} = 0.05 \times 100{,}000\ \text{kg} \times \frac{5\text{g}}{100\text{g}}$$

$$\text{Wt. Packaging Material to be Retrieved} = 250\ \text{kg}$$

GREEN CHOICE PHILIPPINES

National Ecolabelling Programme

Technical Working Group – Synthetic Laundry Detergent

Chair:
Dr. Anamy C. Paano
NELP GCP Technical Committee Member
De La Salle University-Chemistry Department

Members:
Ms. Jocelyn E. Feliciano
Bureau of Product Standards-DTI

Ms. Rosalinda C. Torres
Industrial of Technology Development Institute – DOST

Ms. Ruby R. Salud
Food and Drug Regulation Officers III – BFAD

Ms. Cristina A. Dela Cruz
Food and Drug Regulation Officers III – BFAD

Consultants:
Maureen Grace V. Lebria
Rena Angela S. Bautista
Lejani C. Valisno