

## **GREEN CHOICE PHILIPPINES**

### **NELP-GCP 2008032 AUTOMOTIVE ENGINE OIL**

#### **1. ENVIRONMENTAL SCENARIO**

Petroleum garbage is a mixture of many different kinds of petroleum and chemical waste dominated by used oil. In the engine oil market, the quantity sold is the same quantity disposed of as “used oil”. In service stations and motor pools, used oil is stored in petroleum garbage containers where other kinds of petroleum and chemical wastes are also stored for eventual retrieval of recyclers. With the various available brands of engine oil, hydraulic oil, gear oil, transmission oil having their own formulation additives, the petroleum wastes also contain many different kinds of heavy metals and organic chemicals.

Currently, petroleum waste is not given full attention by the government or by the oil companies themselves. It is a health and environmental hazard that is not accounted for. In fact, just one liter of used engine oil has the potential to contaminate up to 1 million liters of drinking water and substantially damage human health. It also destroys aquatic habitat as it find its way into lakes and rivers.

Proper disposal of petroleum garbage is the main environmental concern in the lubricant industry. This is substantially addressed by RA 6969 and RA 8749, which state among others that petroleum wastes could not be buried or burned. With these laws, there is no sufficient means of disposing such petroleum wastes except through long-term storage, proper recycling and kiln incineration.

#### **2. DEFINITION OF TERMS**

##### **2.1. ADDITIVES**

A suitable substance, usually oil soluble chemical compounds which, when added to petroleum product, confers on its special properties or enhances its natural properties.

##### **2.2. ANTI-WEAR AGENTS**

Chemicals added to oil to minimize wear by reacting with the metal surfaces and provide a protective layer.

##### **2.3. AMERICAN PETROLEUM INDUSTRY (API)**

The main U.S trade association for the oil and natural gas industry, representing about 400 corporations involved in production, refinement, distribution, and many other aspects of the industry. The association’s chief functions on behalf of the industry include advocacy and negotiation with governmental, legal, and regulatory agencies; research into economic, toxicological, and environmental effects; establishment and certification of industry standards; and education outreach. <sup>[2]</sup>

##### **2.4. AUTOMOTIVE**

Passenger car and light commercial vehicles

##### **2.5. BLENDING**

Refers to the process of mixing together base oil and additive to obtain a particular product such as lubricant.

**2.6. BASE FLUID**

A lubricating fluid whose flow, aging, lubricity and wear properties as well as its properties regarding contaminant suspension have not been improved by the inclusion of additives.

**2.7. BASE STOCK**

A mineral hydrocarbon or synthetic lubricant component that is produced by a single manufacturer (independent of feed stock or manufacturing location), that meets the same manufacturer's specification, and that is identified by a unique formula, product identification number, or both.

**2.8. CHEMICAL CONTROL ORDER**

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

**2.9. DENR ADMINISTRATIVE ORDER 2005-05 (DENR AO 2005-05)**

Toxic Chemical Substances for Issuance of Chemical Control Orders

**2.10. DENR ADMINISTRATIVE ORDER 2005-27 (DENR AO 2005-27)**

Revised Priority Chemical List

**2.11. ENGINE OIL OR MOTOR OIL**

A type of oil used for lubrication by various kinds of motors, especially internal combustion engines. Other benefits from using motor oil include cooling by carrying heat away from moving engine parts.

**2.12. IMPORTATION**

Means 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.

**2.13. LUBRICATING OIL**

A liquid consists of base fluids and additives. It creates film between surfaces of parts that are moving against each other, minimizing direct contact between them. This lubricating film decreases friction, wearing, and production of excessive heat between the moving parts.

**2.14. PROCESS**

Shall refer 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 of 1990

**2.16. REPUBLIC ACT 8749 (8749)**

Philippine Clean Air Act of 1999

**2.17. TOXIC WASTES**

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

**2.18. TRANSPORT**

Includes conveyance used in air, water and land.

**2.19. VISCOSITY MODIFIER/INDEX IMPROVER**

An additive which increases the viscosity index of oil to a level that cannot be obtained by ordinary refining method.

**2.20. UNREASONABLE RISK**

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

**2.21. USED OIL**

Any lubricating, hydraulic, cutting, quenching, or non-consumable process oil which has lost its utility by deterioration through use; or that which no longer meets the specification of the original product.

**3. SCOPE**

These criteria shall apply to 4-stroke automotive engine oil.

**4. GREEN CHOICE REQUIREMENTS**

**4.1. Product Quality Performance**

The product shall meet the performance requirement of the relevant Philippine product standard or with API, for its intended application.

**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 Material Safety Data sheets (MSDSs)**

The applicant shall submit MSDS for the specified product.

**4.2.3 Prohibited Substances**

The following substances shall not be present in the lubricant or used in production

- Substances listed in DENR AO 2005-05
- Substances listed in DENR AO 2005-27
- Polybrominated diphenyl ethers, or brominated paraffins, chlorinated paraffins.
- Alkylphenolethoxylates (APEO), their derivatives (APDs), or linear alkylbenzene sulphonates (LAS).
- Metals or metallic compounds with the exception of sodium, potassium, magnesium and calcium.

**4.2.4 Retrieval and Recycling System**

The applicant shall have an established and validated retrieval system equivalent to not less than **25%** of its sold engine oil.



**4. EVALUATION AND VALIDATION METHOD**

| PRODUCT CRITERIA                               | EVALUATION AND VALIDATION  |
|--|--|
| <b>4.1 PRODUCT QUALITY PERFORMANCE</b>         |  |
|  | The applicant shall submit a certification from recognized/ accredited laboratories or certification bodies.*  |
| <b>4.2. PRODUCT ENVIRONMENTAL REQUIREMENTS</b> |  |
| 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. Material Safety Data Sheet              | The applicant shall submit a portfolio and statement in writing signed by the Chief Executive Officer or its equivalent position and shall be accompanied by the relevant documentations.**          |
| 4.2.3. Prohibited Substances                   | The applicant shall submit Pre Manufacture and Pre Importation Notification Certificate (PMPIN).   |
| 4.2.4. Retrieval and Disposal System           | The applicant shall submit annual sales report and Permit To Transport from the accredited transporter and treater.**  |

\* 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

**5. 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 *Green Choice Philippines-ELP Board*, if necessary at any period of time

## REFERENCES

Agency for Toxic Substances and Disease Registry (ATSDR). 1997. **Toxicological Profile for Used Mineral-Based Crankcase Oil.** Atlanta, GA: US Department of Health and Human Services, Public Health Service.

The Australian Ecolabel Program; Good Environmental Choice Australia Standard-Lubricants, GECA 47-2008.

Environmental Choice Program; Certification Criteria Document CCD-054-Automotive Engine Oil - Recycled

Hong Kong Green Label Scheme; Product Environmental Criteria for Lubricating Oil/Grease GL-005-004.

International Organization for Standardization Petroleum Industry Vocabulary Part I, ISO 1998/1 – 1974 (E/F/R)

Japan Environment Association; Eco Mark Product Category No. 110: Biodegradable Lubricating Oil, Version 2.3 Certification Criteria.

Jorio, H., Bibeau, L., and Heitz, M. 2002. **Biofiltration of Air Contaminated by Styrene: Effect of Nitrogen Supply, Gas Flow rate, and Inlet Concentration.** Department de Genie Chimique, Universite de Sherbrooke, Quebec, Canada.

Journal of Applied Physics. Vol 93 (9) pp. 5113-5117, May 1, 2003.

Korea Eco-Label; EL 503-1999/5/2005-68: Engine Oil for Gasoline Car

Korea Eco-Label; EL 504-2000/5/2005-68: Engine Oil for Diesel Car

Manahan, S. E. 1994. **Environmental Chemistry 6<sup>th</sup> Ed.** Lewis Publishers, Florida, USA.

Mobil Lubricants Catalogue – Mobil Philippines, 1995

Nazaroff, W. and Alvarez-Cohen, L. 2003. **Environmental Engineering Science.**

Odjegba, V. J. and Sadiq, A. O. 2002. **Effects of Spent Engine Oil on the Growth Parameters, chlorophyll and protein levels of Amaranthus hybridus L.** Department of Botany and Microbiology, University of Lagos, Akoka-Yaba, Lagos, Nigeria

Product Guide – Caltex Philippines, Inc.

Product Line – Petron Corporation, 3<sup>rd</sup> Edition

Shell Global Solutions. **The Development of Environmentally Acceptable Lubricants**

United States Environmental Protection Agency, **Public Health & Environmental Benefits of EPA's Proposed Program for Low Emission Nonroad Diesel Engines and Fuel,** EPA420-F-03-010, April 2003

Green Seal; GS-3 Green Seal Environmental Standard for Re-refined Engine Oil.

**GREEN CHOICE PHILIPPINES**  
National Ecolabelling Programme

**Technical Working Group – Automotive Engine Oil**

***Members:***

***Joy Aureo***

Department of Energy

***Jocelyn Feliciano***

Bureau of Product Standards - DTI

***Samuel Dumdum***

Micford Groy

***Peteri Makitalo***

***Rommel Manuel***

***Jun Ellis***

Veredium Energy Ventures

***Consultants:***

Maureen Grace V. Lebria

Rena Angela S. Bautista