



Treatment Process of Automotive Battery Electrolyte Solution

PE-166.02

Date: Jun. 2017

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1. Introduction

The ABNT Ecolabelling program was developed to support a continuous effort in order to improve and/or maintain the environmental quality through reduction of energy and material consumption, as well as through the minimization of pollution's impacts generated by production, use and final disposal of products and services.

This document was prepared based on a general view about the evaluation of life cycle product, as set on norm ABNT NBR ISO 14024 for Type I Ecolabelling program, and based on information about specifications of similar products from other environmental labelling programs developed by other members of Global Ecolabelling Network (GEN).

2. Objective

This Procedure establishes the requirements that the "textile floor covering" product available in the Brazilian market must comply to obtain the license for using the ABNT Environmental Quality Label (ABNT Ecolabel)

3. Normative References

The documents listed below contain the dispositions which, through reference in this text, constitute valid requirements for this procedure. The editions indicated were valid at the time of this publication. As the documents are open to review, it is recommended to those that use this procedure verify the convenience of using the most recent editions of the documents listed.

- ABNT NBR ISO 14001: 2004 - Environmental Management Systems – Requirements with guidance for use;
- ABNT NBR ISO 14020: 2002 - Labelling and environmental statements – General principles;
- ABNT NBR ISO 14024: 2004 - Labelling and environmental statements – Environmental labelling type I – Principles and procedures;
- ABNT NBR ISO 14040: 2001 - Environmental management – evaluation of life cycle – Principles and structure;
- PG-11:2009 - General Procedure of ABNT conformity mark – Environmental Quality;
- PG-12:2009 - Guideline for elaboration of ABNT conformity Mark – Environmental Quality;
- CONAMA Resolution 257/99 - Disposal of AA Batteries and Automotive Batteries.
- CONAMA Resolution 357/05 - Classification of water bodies and discharge of effluents.
- CONAMA Resolution 430/11 - Effluent release standards.
- Law nº 12.305/10 - National Policy on Solid Waste.



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4. Definitions

Are adopted for the purposes of this procedure the definitions in the reference documents cited in item 2 and the following definitions.

1.1 Type I Environmental Labelling Programme

Third part voluntary program, based on multiple criteria, which grants a license that authorizes the use of environmental labels in products, indicating the environmental preference of a product within a specific product category, based on life cycle considerations (ABNT NBR ISO 14024).

1.2 Life-Cycle Assessment (LCA)

LCA focuses on environmental aspects and potential environmental impacts (eg use of resources and the consequences of release to the environment) throughout the Life of a product, from the acquisition of raw materials, production, use, treatment, Post-use, recycling to the final disposal (ie from cradle to grave) (ABNT NBR 14040).

5. Acronyms

As siglas empregadas no texto deste Procedimento são as seguintes:

- ABNT - Associação Brasileira de Normas Técnicas
- LCA - Life cycle assessment
- CT - Technical coordination
- GSI - Systems Certification Management
- ISO - International Organization for Standardization
- GEN - Global Ecolabelling Network
- MSDS - Material Safety Data Sheets
- IBAMA - Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis
- ABNT/CTC - ABNT – Certification Technical Committee
- CONAMA - National Council for the Environment

6. Certification Scope

This procedure, included in the service's category, covers the scope of: Treatment Process of Automotive Battery Electrolyte Solution.

The raw material used in this process is: Electrolytic solution of sulfuric acid from automotive batteries.

The treatment process consists in recycling the acid solution, recovering the Heavy metals, mainly lead, making sulfuric acid and lead available as Raw materials for other processes.

7. Criteria

7.1 Fitness for purpose

Fitness for purpose can be evidenced through:



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- a) A certificate which guarantees the performance of the service provided by third part organization accredited by Cgcre (Inmetro);
- b) An internal methodology or procedures, based on Brazilian technical standards, International or market best practices developed by the organization in order to demonstrate the performance of the service, since was approved by ABNT.

7.2 Raw Material Criteria

- a) The manufacturer shall qualify its main suppliers of raw materials and inputs, considering at least compliance with environmental applicable legislation.
- b) The raw materials and chemical inputs used in the process of producing the products Must be accompanied by:
 - I. Safety Data Sheet for Chemical Products (MSDS);
 - II. CAS registry number;

7.3 Process Criteria

7.3.1 Heavy metals and other elements

- a) The organization shall analyze and report monthly the results of the treatment of Electrolytic solution.
- b) The report shall contain the level of the following elements:
 - I. Arsenic
 - II. Cadmium
 - III. Lead
 - IV. Copper
 - V. Selenium
 - VI. Iron.
- c) The organization must maintain an arithmetic moving average (MMA) during the last 12 months of the elements mentioned above.

Note: The arithmetic moving average is calculated by summing the latest available number of 12 results divided by the number of results, according to the expression below

$$MMA = \frac{R_1 + R_2 + \dots + R_n}{n} ; \text{sendo } n \leq 12$$

7.3.2 Lead

- a) The concentration of lead in the electrolytic solution of sulfuric acid after treatment must be less or equal than to 6.0 mg / L.
- b) The arithmetic moving average (MMA) of the last 12 months shall be maintained equal to 5.5 mg/L.
- c) Recovered lead must be sent to the licensed companies to work with this metal.



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At the discretion of the ABNT, during the audits samples of the electrolytic solution to carry out tests.

7.4 Process's Protection measures

The organization must:

- I. To have environmental protection measures for soil, water and atmosphere;
- II. Must have qualified personal to respond to environmental emergencies.

7.5 User's Information

The following information's must be available for clients:

a) Product

- I. Proper form of use;
- II. Personal protective equipment for product handling;
- III. Possible damages to health and the environment;
- IV. The report (analysis report) with the average of the last 12 results of the elements described in criterion 7.3.
- V. FISPQ;
- VI. Forms of final disposal.

b) For Package:

- I. Forms of final disposal;
- II. Information if packaging is recyclable.

c) For Consumers:

- I. It must be clear that the scope of the use of the electrolytic solution is in order to avoid confusion or misinterpretation.

7.6 Product use

The organization must influence its customers, in the environmentally correct use of the lead recovered from the treatment process, such as:

- I. Implementation of an environmental management system or environmental management Waste
- II. Monitoring of lead in its emissions and effluents.

This requirement can be evidenced through explanatory pamphlets, Training, product use and disposal manuals, site guidance, and more.

7.7 Package Criteria

The product must be packed in recyclable packaging.



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7.7.1 Plastics

- a) In order to facilitate the recycling process, plastics must be identified according to Annex I of ABNT NBR 13230: 2008.
- b) Plastic packagings containing halogenates in their composition should not be used.
- c) Shock absorbing materials made of plastic shall contain at least 50% of recyclable plastic of the total weight
- d) The organization shall use packaging containing at least 5% recycled plastic or from renewable origin.

7.7.2 Paper And Cellulose

Shock absorbing materials made of cellulose or paper must contain at least 65% recycled material.

7.8 Storage of Chemical Products

- a) The storage site must have an adequate ventilation system and impermeable floor;
- b) The organization shall store the chemicals according to the compatibility instructions described in the MSDS;
- c) Solid and liquid products shall not be stored in the same space in order to avoid generation of chemical reactions in case of broken bottles;
- d) Chemicals must be separated into compatible chemical groups;
- e) Incompatible chemicals shall be separated by a physical barrier between them;

7.9 Distribution Criteria

7.9.1 Own Transport

In case the manufacturer has in his own facility gas stations for own consumption, the company shall have contention/prevention measures and emergency procedures in case of leakage, fire and explosion.

- a) The manufacturer shall implement a Program for product transport and distribution logistics optimization. This program shall:
 - I. This program shall establish the reduction on fossil fuels, with established and periodically monitored goals.
 - II. The program, whenever possible, shall consider the use of transportation means which are less pollutant or with less environmental impacts (electrical motorization, hybrid vehicles, multi-fuel vehicles, run by ethanol, GNV, biodiesel, etc), including the company with the referred goals.



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- b) Distribution programs should ensure that vehicles are maintained with their regulated engines in order to reduce fuel consumption and emissions.
- c) In case where the manufacturer has in its facilities, fuel filling stations for own consumption, should have containment/prevention measures and emergency procedures, in case of spillage, fire and explosion. Filling stations shall be licensed by the competent environmental agency.
- d) If the manufacturer realized the maintenance of its fleet in third-party site, it shall be licensed by the competent environmental agency. Vehicle licensing and maintenance records should be kept.

7.9.2 Outsourced Transportation

- a. In case the manufacturing company uses outsourced transportation, they shall be qualified based on criteria that include environmental aspects that consider, at least, the following:
 - I. Emissions control, periodic maintenance program;
 - II. Legal documentation for chemicals transportation (if necessary), environmental license (if necessary), certificate of regularity;
 - III. Periodic training for employees and conformity with CONTRAN (ANTT);

7.10 Management criteria applicable to the manufacturing process

7.10.1 Energy Management

- a) The manufacturer should establish an optimization and monitoring program of energy consumption with appropriate reduction targets.
- b) the program should consider training and consciousness of its employees acting on behalf the organization (hired and outsourced).

7.10.2 Water Management

- a) The manufacturer should establish an optimization and monitoring program of water consumption with appropriate reduction targets.
- b) The Program should consider reusing water wherever possible, as well as cleaning and sanitizing procedures of machinery, equipment, transfer pipes and hoses, among others, when possible.
- c) The program should consider training and consciousness of its employees acting on behalf the organization.

7.10.3 Waste Management

- e) The manufacturer shall establish a waste management program that considers the non-generation, reduction, reuse or recycling, ensuring its optimization and proper disposal of waste streams, including recyclables.
- b) All waste should be classified according to the standard ABNT NBR 10004.
- c) If the process has dangerous by-products as one of its results, this shall be segregated and should be taken appropriate measures for recycling / reuse (if applicable) or elimination.



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d) The program should consider training and consciousness of its employees acting on behalf the organization.

Transitional provision: after 24 months from the approval of this procedure the waste management program should cover the reverse logistics of packaging materials generated in the process, if applicable.

7.10.4 Environmental criteria applicable to the process:

- a) The effluents that may be generated in the process must be treated in accordance with the applicable environmental legislation;
- b) If the responsible for treatment is storing dangerous or environmentally harmful products, it must follow the applicable standards and legislation to health, safety and the environment;
- c) The MSDS must be close to the chemical which may be stored or readily available.

7.11 Self - Control

During the audits, the manufacturer shall demonstrate to ABNT how controls its production process in order to maintain the product in comply with the criteria established in this procedure.

This systematic is subject to approval of ABNT and may be considered a non-conforming item if it is not approved.

8. Meeting legal requirements

8.1 Complying with environmental legislation

The manufacturing company shall comply with (or exceed) the legislation and applicable environmental regulations, at federal, state and municipal scope, considering, but not limiting to, aspects related to emissions, effluents and residue. Whenever the manufacturing company is from abroad, the environmental regulations from that country are applicable.

8.2 Conformity with labor, anti-discrimination and safety regulations

The manufacturer shall show that all the employees are hired according to Brazilian legislation, by CLT or any other type of labor contract legally accepted. The general conformity with federal, state and municipal legislation related to employee's Safety and Occupational Health shall be proved. Whenever the manufacturer is from abroad, the regulations on non-discrimination, occupational safety and health and labor legislation from that country, is applicable.

At ABNT's discretion, the conformity with this requirement shall be proved with a statement signed by the Senior Executive.



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9 Criteria Changes

After the concession of ABNT environmental quality label, or during the concession process, changes occur in the criteria for the product's certification, ABNT shall grant a period to the manufactures in order to adapt to the new requirements.