



Ecolabel for roadmarking systems

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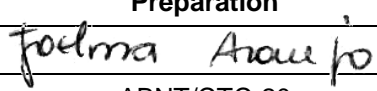
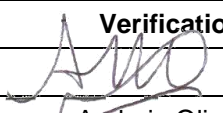
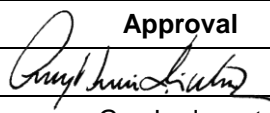
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History of revisions

Revision	Date	Description of modification	Comments
02	03/12/2012	Revision of Normative references	

Preparation	Verification	Approval
		
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0 Introduction

ABNT's Environmental Labeling program has been developed to support a continuing effort for improving and/or maintaining environmental quality via reduced energy and material consumption, along with the minimization of pollution impacts brought on through production, use and final disposal of products and services.

This document has been prepared based on an overview concerning the life cycle evaluation of the product, according to the requirements of the standard ABNT NBR ISO 14024, for type I ecolabelling programs, and in information on specifications for similar products from other environmental ecolabelling programs developed by other members of the Global Ecolabelling Network (GEN).

1 Objective

This procedure establishes the requirements that the product "material for road marking", available on the Brazilian market, shall adhere to in order to obtain a license for the use of the ABNT Environmental Quality Mark (ABNT Ecolabel).

2 Normative references

The documents listed below contain dispositions which, when cited in this text, constitute valid requirements for this procedure. The editions indicated were valid at the time of this issue. Considering that documents are subject to revision, it is recommended to those who use this procedure to investigate the convenience to use the most recent editions of the documents indicated. ABNT keep records of the current valid documents.

- ABNT NBR ISO 14001:2004 - Environmental management systems - Requirements with guidance for use
- ABNT NBR ISO 14020:2002 - Environmental labels and declarations - General principles
- ABNT NBR ISO 14024:2004 - Environmental labels and declarations - Type I environmental labelling - Principles and procedures
- ABNT NBR ISO 14040:2001 - Environmental management - Life cycle assessment - Principles and framework
- ABNT NBR 10004:2004 - Solid waste - Classification
- PG-11 - General Procedure for ABNT Environmental Quality Label
- PG-12 - Guidelines for preparing ABNT Environmental Quality Label criteria
- ASTM D2369-10 - Standard Method 6200 - Volatile Organic Compounds.
- EN 1436:2009-01 - Road marking materials - Road marking performance for road users
- EN 13197:2001 - Road marking materials – wear simulator
- EN 12802:2011 - Road marking materials laboratory methods for identification



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OBS.: The documents PG-11 and PG-12 can be found in their latest versions at the link:

<http://www.abntonline.com.br/rotulo/>

3 Definitions

3.1 Type I ecolabelling program

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

3.2 Life cycle evaluation (LCE)

LCE considers the environmental impacts along the product's life (from cradle to grave) from the extraction of raw materials to manufacture, use and final disposition. The general categories of environmental impacts to be considered include the exhausting of resources, the human health and the ecological consequences.

3.3 Horizontal road marking (horizontal road demarcation)

Long lines of white or yellow color, transverse markings, symbols, crosswalks, streets, etc. present on the surface of the asphalt and/or concrete and exposed to traffic.

3.4 Demarcation of areas

Road signs with anti-slip properties, a set of marks, signs, symbols, subtitles for the purpose of ordering, conduct, drive, transmit clear and simple messages in order to provide safety and comfort to users, besides granting beauty to the road.

3.5 Resistance to slippage

Measurement of the coefficient of friction or resistance effect caused by contact between two surfaces, for instance, tires and road surface.

4 Acronyms

The acronyms used in the text of this procedure are the following:

- ABNT - Brazilian Association of Technical Standards
- LCE - Life cycle evaluation
- CT - Technical Coordination
- GSI - Systems Certification Management
- ISO - International Organization for Standardization
- GEN - Global Ecolabelling Network
- FISPQ - Information Sheet for Chemical Products
- ABNT/CTC - Technical Certification Committee
- VOC - Volatile organic compounds
- DER - Highway Department



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- DNER - National Highway Department
- DNIT - National Department of Traffic Infra-structure

5 Scope of products

This procedure includes the horizontal road marking listed below:

- ⇒ Cold plastic;
- ⇒ Thermoplastic;
- ⇒ Water based paint;
- ⇒ Solvent based paint.

6 Criteria

6.1 Fitness to use

The product shall be suitable to its intended purpose. Certain quality and durability patterns may be inherent to the product itself. The fitness to use of the product shall be proved by the manufacturer, meeting the regulatory requirements of the road sector (DNIT/DNER and/or State DER).

6.2 Environmental criteria for the product

Physical and chemical tests must be performed by laboratories accredited to verify the identification of the road marking. Tests shall be conducted in accordance with EN 12802, by a laboratory indicated by ABNT and shall include the evaluation of organic and inorganic compounds.

6.2.1 Performance characteristics

The basic requirements demanded for the specification of road markings shall be in accordance to the following requirements of EN 1436:2009-01 presented in Table 1. The tests shall be conducted in accordance with the standard EN 13197:2001, using test plates with roughness equal to 0.70 ± 0.10 (RG2):

Table 1: Performance Characteristics

Characteristic	Environmental Conditions	Wheel passages x 10 ⁶
		2,0
Nighttime visibility (mcd/m ² .lx)	Dry	≥100 (White) ≥80 (Yellow)
	Rain	≥ 25
	Wet	≥ 25
Daytime visibility (mcd/m ² .lx)	Coefficient under diffuse lighting luminescence	≥100 (Asphalt) ≥130 (Cement)
Coefficient of resistance to slippage*	--- x ---	≥ 40
Erosion (% retained)	--- x ---	> 90



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* The measurement of skid resistance of road markings may not be able to be performed due to uneven surfaces.

Reference standards: EN 1436:2009-01 and EN 13197:2001.

6.2.2 Heavy metals

The following heavy metals or their compounds should not be used as ingredients of the product or pigment whether as a substance or as part of any preparation used:

- | | |
|---------------|-------------------------------------|
| ⇒ Cadmium | ⇒ Arsenic |
| ⇒ Lead | ⇒ Barium (excluding barium sulfate) |
| ⇒ Chromium VI | ⇒ Selenium |
| ⇒ Mercury | ⇒ Antimony |

It is accepted that ingredients may contain traces of these metals up to a maximum of 0.01% (w/w) from impurities of raw materials.

The manufacturer shall provide a declaration of compliance with this criteria as well as statements from the suppliers of ingredients (if applicable). Under decision of ABNT, during the audits samples may be collected for testing.

6.2.3 Organic compounds

Solvents containing halogenated or aromatic hydrocarbons in its formulation shall not be used. The content of VOCs in the final product shall be less than or equal to 150 g/kg according to ASTM D2369-10.

6.3 Criteria for road marking application

6.3.1 Horizontal road marking service should only be started after installation of signage works (diversion of traffic and personal protection required by legislation and safety standards).

6.3.2 The manufacturer shall instruct the company responsible for application of road marking products on the dangers to health and the environment, for example, giving appropriate personal protective equipment for each horizontal road marking system.

6.3.3 The company responsible for the application of road markings shall have environmental protection measures in emergencies (spills, fires caused by flammable products, among others). The waste generated in the application of road marking shall be sent for environmentally adequate disposal.

6.3.4 Information for consumers

The following information must appear on the packaging or partake in explaining pamphlets:

- ⇒ The use and conditions of use, as well as the type of substrate (asphalt, cement, etc.) the product is intended to, including instructions on preparing the application, for instance, the correct preparation of the substrate or the application temperature;
- ⇒ The characteristics of toxicity and flammability of the product shall be clearly stated on the packaging;



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- ⇒ Recommendations regarding cleaning tools and the proper management of waste. These recommendations should be adapted according to the type of product and type of application;
- ⇒ Recommendations concerning storage conditions after opening the product, including, where appropriate, safety instructions;
- ⇒ Recommendations on preventive measures to protect the applicator.

6.4 Criteria for packaging

The package must be made of recyclable materials. Before use, packaging must not be impregnated, labeled, coated or treated in a way that could prevent recycling.

6.5 Criteria for distribution

The manufacturer shall implement a Program for optimization of the logistic of product transport and distribution. This program should establish the consumption reduction of fossil fuels, with targets set and monitored periodically. The program, to the possible extent, shall consider the use of less polluting transport means and/or means of transport causing less environmental impacts (electric engine, hybrid vehicles, multifuels vehicles, powered by ethanol, natural gas vehicle, biodiesel, etc.), including the establishment of these goals.

Distribution programs shall ensure that the vehicles are kept with their engines set so as to reduce fuel consumption and emissions.

6.5.1 Own transport

In case the manufacturer has fueling stations in its own facilities to supply fuel for its own use, containment/prevention measures and emergency procedures for leakage, fire and explosions, have to be taken.

6.5.2 Transportation outsourced

If the manufacturer uses outsourced transport companies, these companies must be qualified based on criteria that include environmental aspects considering, at least, the following: emissions control, regular maintenance program, legal documentation for the transportation of chemicals (if necessary), environmental license, regularity certificate, periodic training to employees and compliance with the National Traffic Council - CONTRAN (Terrestrial Transport National Agency - ANTT).

6.6 Environmental criteria applicable to the process

- a) The manufacturer shall establish a program for optimization of energy and water consumption, including reduction goals as appropriate. The program shall consider the reuse of water used in cooling systems, steam generation, as well as cleaning and sanitizing of machinery, equipment, transfer pipes and hoses, among others, when possible;
- b) The manufacturer shall establish a waste management program that considers the waste reduction, reuse or recycling, ensuring its optimization and proper disposal of the waste generated, including recyclables. All waste shall be classified according to ABNT NBR 10004 (or similar standard in the country audited). If the process has dangerous byproducts as its results, these byproducts shall be segregated and appropriate measures must be taken for recycling/reuse (if applicable) or disposal;



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- c) If the manufacturer uses to store products that are hazardous or harmful to the environment, standards and legislation applicable to health, safety and environment have to be followed. The MSDS (material safety data sheets) shall be located close to the chemical product eventually stored.

7 Compliance to legal requirements

7.1 Compliance to environmental regulations

The manufacturer shall comply (or exceed) to the applicable regulations and legislation at the federal, state and municipal levels considering also, but not limited to, aspects related to emissions, effluents and waste. Whenever a manufacturer operates in a foreign jurisdiction, the environmental regulations of that jurisdiction apply.

7.2 Compliance to labor, anti-discriminatory and safety regulations

The manufacturer shall demonstrate that all employees are covered by a labor situation in accordance to Brazilian law, either by the Confederation of Labor Laws - CLT or other type of employment contract legally accepted. It must be demonstrated compliance to federal, state or municipal terms on the Occupational Safety and Health of the worker. Whenever a manufacturer operates in a foreign jurisdiction, the regulations on non-discrimination, occupational health and safety and labor laws of that jurisdiction apply.

Under decision of ABNT, the compliance to this requirement may be evidenced by a statement signed by the Senior Executive of the Company.

8 Using test laboratories

8.1 ABNT is responsible for selecting the laboratory to perform the tests which will be used in the process of concession and maintenance of ABNT's Environmental Quality Mark – ABNT Ecolabel.

8.2 When using laboratories accredited by Inmetro or accredited by Accreditation Bodies from other Countries with which Inmetro has mutual recognition agreement, the laboratories need not to be evaluated.

8.3 When non accredited laboratories are used, they shall be evaluated in accordance to item 7.5 of PG-11 - General Procedure for ABNT Environmental Quality Label.

8.4 In case of using a first part laboratory (laboratory owned by a manufacturer), ABNT shall accompany the execution of all tests for concession and maintenance of certification, regardless the laboratory is accredited or not.

9 Description of certification process

9.1 Documentation

The manufacturer shall forward the documents listed below to ABNT for a document analysis:

- a) Specification of each product to be certified;
- b) Copy of the Company' social contract registered under Commercial Official Department;



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- c) Plant of the site;
- d) Update geographic location (specifying the area surrounding the site - rivers, conservation areas, communities, industries, among others);
- e) List of main raw materials used in the production process;
- f) List of key inputs that are necessary for the completion of the production process;
- g) Environmental Licenses;
- h) Schematic flowchart of the production process, from the entry of raw materials to the output of finished product;
- i) Internal flow of water, energy, waste, effluents and emissions, regarding the manufacture of the product object of the concession.

9.2 Preliminary analysis

The documentation will be analyzed by ABNT to verify its adequacy and content, resolving any eventual outstanding together with the manufacturer.

9.3 Pre-audit (optional)

After approval of the documents presented, ABNT will carry out a pre-audit at the manufacturer's facilities, with the following objectives:

- a) Evaluate the manufacturer's location and the specific conditions of the local;
- b) Check the manufacturer's level of preparation for the certification audit;
- c) Evaluate the understanding of the manufacturer about the criteria to be met in order to obtain the certification;
- d) Collect the necessary information related to the processes and manufacturer's location, legal and regulatory aspects;
- e) Evaluate the allocation of resources for the certification audit, as well as facilitate the certification audit planning.

9.4 Certification audit

Once all irregularities and outstanding issues have been eliminated from the documents and having found solutions for any comments made during the pre-audit, the certification audit will take place and shall encompass the following aspects:

9.4.1 Evaluation of products

ABNT will evaluate at the manufacturers facilities if the products to be certified are being manufactured in accordance with the projects/specifications that have been presented, along with the way the manufacturer controls the production process in order to ensure compliance to the requirements.

9.4.2 Evaluation of the compliance to technical criteria and legal requirements

ABNT will verify if the manufacturer's products and/or processes, which are object of certification, are in compliance to the requirements of items 6 and 7 of this procedure, through documents, interviews, accompaniment of the productive process, records, etc.



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For the criteria that cannot be assessed during the audit, for example those that require laboratory tests for verification, the manufacturer must demonstrate how it manages its production process and its relationship with suppliers, distributors and/or customers, in order to comply to the criteria. For these cases, under decision of ABNT, during the audits samples may be collected for testing in laboratories selected in accordance with item 8 of this procedure.

9.4.3 Sample collection and testing

The samples collected for testing by ABNT must consist of first sample, counter-sample and control sample. Samples will be sealed by ABNT. The identification of these seals shall be recorded in the sample collection form. The test samples shall be sent to the laboratory designated by ABNT, accompanied by a copy of the sample collection form. Counter-sample and control sample shall be stored by the manufacturer for purposes of possible disputes.

The manufacturer must take the necessary precautions to preserve the seals of the samples sent to the laboratory as well as those stored for possible disputes.

The tests shall be performed for each production unit and for each type of road marking subjected to the Ecolabel certification. Any modification in the formulation shall be informed to ABNT.

9.5 Initial quality evaluation

To approve the concession of ABNT Environmental Quality Mark, the samples tested shall succeed in the tests specified in item 6 of this procedure, as well as the assessment of the requirements in items 6 and 7 shall demonstrate compliance throughout the process.

In case of failure in any of the tests performed during this phase, the product certification will not be granted until the resolution of the problem.

After implementation of the corrective actions, ABNT will schedule a new samples collection and the completion of new tests. In this case, the number of samples shall be double the initial sampling. If the test samples are approved, the certification is then granted for the product.

9.6 Certification concession

When all the previous steps have been completed, CT issues a conclusive opinion and forward the process for the GSI analysis. In case of approval by GSI, ABNT will issue the ABNT Environmental Quality Mark Certificate, which is the license for use of the label on the product (Ecolabel).

In case of failure, the reasons will be communicated to the manufacturer so that the necessary corrective actions are taken and the product can return to the certification process. The corrective actions as well as the actions taken to return to the certification process shall be agreed with ABNT.

10 Description of the certification maintenance process

After the concession of the Certification, ABNT shall carry out the control activities in order to verify the manufacturers' maintenance of the technical/organizational conditions which gave origin to the certification. This verification will be completed through maintenance audits and may also, under decision of ABNT, require sample collection for testing.



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10.1 Maintenance audits

The audits will be held annually at previously set times and dates agreed to by the manufacturer. In these audits the following aspects will be considered:

10.1.1 Evaluation of products

ABNT will verify at the manufacturer's facilities, whether the certified products continue to be manufactured according to the originally presented specifications.

10.1.2 Evaluation of the compliance to the performance criteria and legal requirements

ABNT will verify if the manufacturer's product and/or processes, which are object of certification, are in compliance to the requirements established in items 6 and 7 of this procedure. The requirements which cannot be evaluated during the audit, for example those which need to be tested in a laboratory to demonstrate compliance, the manufacturer shall inform the way the production process is controlled, as well as its relationship with suppliers, distributors and customers, in order to comply to these requirements.

10.1.3 Sample collection and tests

Under decision of ABNT, tests will be conducted on an annual basis in samples collected at the factory. The tests shall be performed for each production unit. For eventual market sample collection, the manufacturer (or its representative) shall be informed by ABNT and shall accompany the sample collection.

The samples for testing shall be composed of first sample, counter-sample and control sample. The samples shall be sealed by ABNT. The identification of the seals shall be registered on the sample collection form. The first sample shall be sent to the testing laboratory indicated by ABNT, accompanied by a copy of the sample collection form. The counter-sample and control sample shall be stored by the manufacturer for a minimum period of 6 (six) months, for the purpose of possible dispute.

The manufacturer must take the necessary precautions to preserve the seals of the samples sent to the laboratory as well as those stored for possible disputes.

The test results shall be sent to the manufacturer by ABNT. In the event of non-compliance in tests (non-fulfillment of some established requirements) the manufacturer must submit an action plan within 15 days for ABNT evaluation.

10.2 Conformity evaluation

For the certification maintenance, the tested samples shall succeed the tests related to in item 6 of this procedure, as well as the evaluation of the requirements established in items 6 and 7 shall demonstrate conformity throughout the entire process.

In case of failure in any tested product during this phase, the certification of the non-conforming product will be suspended until the problem is resolved.

After the implementation of the corrective actions, ABNT shall schedule a new audit and sample collection for testing. In case the manufacturer does not present any non-conformity and the tested samples succeed, the manufacturer will be allowed to use again the ABNT Conformity Mark on the product.



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After this audit, the test sampling for this product will happen in a biannual basis until its conditions have reached the conformity originally demonstrated, when then the sampling period will return to be annual.

10.3 Production control

During the audits, the manufacturer shall demonstrate to ABNT how the production process is controlled so as to maintain the product in conformity to the criteria established in this procedure. This scheme will be subject to ABNT's approval and may be considered as a non-conforming item if not approved.

10.4 Recognition Agreements

As set out in paragraph 15 of PG-11, the process of maintenance of certification can be changed based on the content of any agreements for cooperation or mutual recognition.

11 Criteria modifications

If after the concession of ABNT Environmental Quality Mark, or during the process of concession, changes occur in the established criteria for the certification of the product, ABNT will concede a period of time during which the certified manufacturers will be allowed to adequate the products to the modified requirements.