Dit pdf bestand bevat alle beschikbare talen van het opgevraagde document.

Ce fichier pdf reprend toutes langues disponibles du document demandé.

This pdf file contains all available languages of the requested document.

Dieses PDF-Dokument enthält alle vorhandenen Sprachen des angefragten Dokumentes.

COPRO vzw - Onpartijdige instelling voor de controle van bouwproducten
COPRO asbl - Organisme impartial de contrôle de produits pour la construction
COPRO - A not-for-profit impartial product control body for the construction industry

Z.1. Researchpark - Kranenberg 190 - BE-1731 Zellik (Asse)
T +32 (0)2 468 00 95 - info@copro.eu - www.copro.eu

KBC IBAN BE20 4264 0798 0156 - BIC KREDBEBB - BTW/TVA/VAT BE 0424.377.275 - RPR Brussel/RPM Bruxelles/RLP Brussels

TECHNICAL REQUIREMENTS

PTV 888

BENOR

TECHNICAL REQUIREMENTS

FOR

PREFORMED ROAD MARKINGS

COPRO - A not-for-profit impartial product control body for the construction industry

Z.1. Researchpark
Kranenberg 190
BE-1731 Zellik (Asse)

T +32 (0)2 468 00 95
info@copro.eu
www.copro.eu

VAT BE 0424.377.275
KBC BE20 4264 0798 0156
RLP Brussels

CONTENTS

FOREWORD

This document contains the technical requirements for preformed road markings. The requirements included in these PTV respond to needs established by the various interested parties according to local customs.

The customer and/or user can require conformity of preformed road markings to the requirements of the PTV 888 to be demonstrated by way of a lot control.

The conformity of preformed road markings can also be certified under the voluntary BENOR mark. With the BENOR mark, the supplier has to declare the performance of preformed road markings for all the characteristics relevant to guaranteeing the application and limit values imposed by this PTV 888.

BENOR certification is based on full product certification in accordance with NBN EN ISO/IEC 17067.

1 INTRODUCTION

1.1 TERMINOLOGY

1.1.1 Definitions

Coefficient of retroreflected luminance, R_L	Quotient of the luminance L of a field of the road marking in a direction of observation by the illuminance E⊥ at the field perpendicular to the direction of the incident light (definition of EN 1436, unit: mcd m^{-2} lx^{-1}).
Drop on materials	The antiskid aggregates, the drop-on glass-beads and the mixtures of glass beads and antiskid aggregates have to meet the requirements of the standard NBN EN 1423 and PTV 881.
Luminance coefficient under diffuse illumination, Qd	Quotient of the luminance of a field of the road marking in a given direction by the illuminance on the field (unit: mcd·m^{-2}·lx^{-1}), definition of EN 1436.
"Passing 90 µm material" of single layer preformed road marking	Material that is not retained on a 90 µm sieve when wet sieving of the solids after solvent extraction.
Preformed cold plastic road marking	Preformed road marking made of cold plastic marking material as defined in PTV 885, applied to the substrate by means of an adhesive, while the photometric, colorimetric and skid resistance characteristics are not significantly modified during application.
Preformed road marking	Factory produced road marking system (or product), in sheet or roll form, capable of being applied to the substrate with adhesive, primer, pressure, heat or a combination of these.
Preformed thermoplastic road marking with drop-on materials	Preformed road marking made of thermoplastic road marking material as defined in PTV 884, applied to the substrate by heating the material at melting temperature and with addition of retroreflective and/or anti-skid materials during application.
Preformed thermoplastic road marking without drop-on materials	"Pre-beaded" preformed road marking made of thermoplastic marking material as defined in PTV 884, applied to the substrate by heating the material at melting temperature and without addition of any retroreflective and/or anti-skid materials during application.
Producer	The party responsible for producing the preformed road markings.
Product	The result of an industrial activity or process. Meant by this in the context of these technical requirements is preformed road markings. It is the collective term for all product articles to which these PTV apply.
Product article	Set of units of a product with the same characteristics and performance that are produced in a specific manner and comply with the technical file.

Production unit	Technical facility/facilities tied to a geographical location used by a producer and in which one or more products are made.
Reference document	Document specifying the technical characteristics with which the materials, equipment, raw materials, production process and/or the product must comply (a standard, specification or any other technical specification).
Removability	The state of being removable entirely without damage to the road surface and without leaving evident residual traces.
Road marking assembly	Road markings, possibly combined with retro reflective road studs, can provide for horizontal road signing. Road markings can be realized by the application of an assembly consisting of a preformed road marking material (compliant with this PTV) and drop-on glass beads or a mixture of glass beads and anti-skid aggregate.
Roll-over class	Number of wheels passages over a point of a road surface within a specified period of time.
Structured road marking	Structured road marking, in the sense of not allowing measurement of the luminance factor and/or the SRT value is a road marking with a structured surface that does not have areas of road marking of regular dimensions and planeness. This may be by the formation of patterns, profiles, random texture or other features.
Supplier	The party having to ensure that preformed road markings comply with the technical requirements. This definition can apply to the producer, the dealer, the importer or the distributor.
Type I and type II road markings	Type II road markings are road markings with special properties intended to enhance the retroreflection in wet or rainy conditions, type I road markings do not necessarily have such special properties.
Type testing	A series of checks for initially establishing (initial type testing) the characteristics of a product article and its conformity.
Yellow orange	In this regulation the colour is “yellow orange” when the chromaticity coordinates lie within the region defined by the corner points of class Y2 of the EN 1436, article 4.4.1 table 6.

1.1.2 Abbreviations

PTV	Technical Requirements
Qd	Luminance coefficient under diffuse illumination
R_L	Coefficient of retroreflected luminance

1.1.3 References

G0025	Guide for the obtainment of an attestation of fitness for use G0025 Test sites on the road of Road marking assemblies
NBN EN 1436	Road marking materials - Road marking performance for road users
NBN EN 1790	Road marking materials - Preformed road markings
NBN EN 1824	Road marking materials - Road trials
NBN EN 1871	Road marking materials - Physical properties
NBN EN 12802	Road marking materials - Laboratory methods for identification
NBN EN ISO/IEC 17067	Conformity assessment - Fundamentals of product certification and guidelines for product certification schemes (ISO/IEC 17067:2013)

This PTV contains dated and undated references. Only the cited version applies to dated references. The latest version always applies to undated references, including any errata, addenda and amendments.

Of all the EN standards referred to in these requirements, the corresponding Belgian publication NBN EN applies in each case. COPRO can allow the use of a publication other than the Belgian one provided its content is identical to that of the Belgian publication.

1.2 AVAILABILITY OF THIS PTV

The current version of this PTV is available free of charge on the COPRO website.

A paper version of this PTV can be ordered from COPRO. COPRO has the right to charge for this.

No changes may be made to the original PTV approved by the sectoral commission and/or confirmed by the Management body of COPRO.

1.3 STATUS OF THIS PTV

1.3.1 Version of this PTV

This PTV concerns version 4.0 which will replace version 3.0.

1.3.2 Approval of this PTV

This PTV was approved by the Sectoral Commission on the 30th of September 2024.

1.3.3 Confirmation of this PTV

This PTV was confirmed by the Management body of COPRO on the 3rd of December 2024.

1.3.4 Registration of this PTV

This PTV was submitted to BENOR non-profit organisation on the 9th of December 2024.

1.4 HIERARCHY OF RULES AND REFERENCE DOCUMENTS

1.4.1 Legislation

If certain rules contained in this PTV are inconsistent with applicable law, the rules arising from the legislation shall prevail. It is the responsibility of the supplier to monitor this and report any contradictions to COPRO in advance.

1.4.2 Directives concerning health and safety

If certain technical requirements are inconsistent with the directives concerning health and safety, such directives shall prevail. It is the responsibility of the supplier to monitor this and report any contradictions to COPRO in advance.

1.4.3 Tender documents

If certain rules from the applicable tender document are inconsistent with these technical requirements, the supplier can report this to COPRO.

1.5 QUESTIONS AND COMMENTS

Questions or comments concerning these technical requirements are directed to COPRO.

2 CONTEXT OF TECHNICAL REQUIREMENTS

2.1 PTV REDACTION

2.1.1 Redaction of this PTV

These technical requirements for the preformed road markings are drawn up by the Sectoral Commission Road marking materials of COPRO.

2.2 OBJECTIVES

2.2.1 Purpose of this PTV

The aim of this PTV is to specify requirements for the preformed road markings used for road markings.

2.3 SCOPE

2.3.1 Subject of these technical requirements

The subject of these technical requirements are white and yellow orange, removable or non-removable, preformed road marking materials, under the form of tape, cold plastic, thermoplastics with or without drop-on materials, to be used for permanent and/or temporary road markings in circulation areas. Other products and colours intended for road markings are not covered by this PTV. The preformed thermoplastic road markings with drop-on materials that are the subject of the PTV are intended to be dropped on with glass beads or with mixtures of glass beads and antiskid aggregates during the application, in order to form a road marking assembly.

This PTV does not cover the compatibility of preformed road marking materials with old marking materials. If necessary, the compatibility of two products will have to be evaluated on a case-by-case basis.

Preformed road markings are not applied directly to hydraulic concrete surfaces but after application of a primer, recommended by the manufacturer. This primer is not covered by the PTV.

2.3.2 Circulars

COPRO can supplement this PTV with one or more circulars forming an integral part of this PTV.

2.4 REFERENCE DOCUMENTS

2.4.1 Product standards

The applicable product standard(s) for preformed road markings is EN 1790.

2.4.2 Tender documents

The tender document(s) can refer to this PTV 888.

2.4.3 Test methods

The applicable test method(s) are mentioned in chapter 4.

2.4.4 Other

Other applicable reference documents are mentioned in article 1.1.3.

3 REQUIREMENTS

3.1 PRODUCTION UNIT AND EQUIPMENT

No requirements are set for the production unit and equipment.

3.2 RAW MATERIALS

3.2.1 Surface materials

The antiskid aggregates, the glass-beads and the mixtures of glass beads and antiskid aggregates have to meet the requirements of chapter 4 of the standard EN 1423.

For other surface materials containing glass, the content of arsenic, lead and antimony, shall be tested in accordance with EN 1423 article 5.4.3. The content of each element (As, Pb, Sb) shall be ≤ 200 ppm (mg/kg).

3.3 PRODUCTION PROCESS

No requirements are set for the production process.

3.4 PREFORMED ROAD MARKING FOR ROAD MARKING

3.4.1 General

3.4.1.1 The preformed road marking meets the requirements set out in articles 3.4.2 to 3.4.9.

3.4.1.2 The supplier shall in each case declare the performance for the characteristics set out in articles 3.4.2 to 3.4.9 for the preformed road marking for road marking.

3.4.1.3 Article 3.4.10 to 3.4.18 are the identification tests. These tests are realised to allow a limited series of tests to verify whether the manufactured or delivered preformed road marking is identical to the preformed road marking that was subjected to the entire series of tests of article 3.4.1. The test results are compared to the declared value or the initial value (see next articles and article 3.6 type testing).

For type testing of the identification characteristics, tolerances apply to the manufacturers declared values for the tested properties. The initial test results shall be within the tolerances mentioned in the next articles.

For re-identification of a preformed road marking, it may not be necessary to test all the values. Reference values for the tested properties are mentioned in the next articles.

3.4.2 Chromaticity coordinates and luminance factor

The chromaticity coordinates are in accordance with EN 1871 table 2 for white preformed thermoplastic road marking with drop-on materials and are within the region defined by the corner points given in EN 1436, Table 6 for white and yellow orange tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials.

The class of the luminance factor is in accordance with EN 1871 article 4.3.2.1 table 6 LF6 (≥ 0,80) for white preformed thermoplastic road marking with drop-on materials and LF2 (≥ 0,50) for yellow orange preformed temporary thermoplastics. No requirement for the white tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials.

The chromaticity coordinates and luminance factor are determined in accordance with EN 1871 Annex F for white preformed thermoplastic road marking with drop-on materials and in accordance with EN 1436, Annex C 6 for white and yellow orange tape, white preformed cold plastic road marking and white preformed thermoplastic road marking without drop-on materials.

3.4.3 Softening point

The class of softening point for white preformed thermoplastic road marking with drop-on materials shall be in accordance with EN 1871 article 4.3.2.2 table 7 SP2.

The softening point is determined in accordance with EN 1871 Annex G (Wilhelmi) for type testing (see article 3.6) or for lot control. In other cases, the softening point is determined in accordance with EN 1427 or EN 1871 Annex G.

3.4.4 Cold impact resistance

The class of cold impact resistance for white preformed thermoplastic road marking with drop-on materials is in accordance with EN 1871 article 4.3.2.4 table 8 shall beCl1.

The cold impact resistance is determined in accordance with EN 1871 Annex I.

3.4.5 Day time visibility (reflection in daylight or under road lighting)

The minimum class of luminance coefficient under diffuse illumination Qd for white tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials is in accordance with EN 1436 article 4.2.2 table 1 Q2: ≥ 100 $mcd \cdot m^{-2} \cdot lx^{-1}$. The minimum class of luminance coefficient under diffuse illumination Qd for yellow orange tape is in accordance with EN 1436 article 4.2.2 table 1 Q1: ≥ 80 $mcd \cdot m^{-2} \cdot lx^{-1}$.

The preformed road marking is applied to a flat carrier according to article 4.2.1. The luminance coefficient under diffuse illumination Qd is determined in accordance with EN 1436 Annex A.

3.4.6 Night-time visibility (retroreflection under vehicle headlamp illumination)

The minimum class of coefficient of retroreflected luminance on dry conditions R_L for white tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials is in accordance with EN 1436 article 4.3 table 3 R2: ≥ 100 $mcd \cdot m^{-2} \cdot lx^{-1}$. The minimum class of coefficient of retroreflected luminance on dry conditions R_L for yellow orange tape is R3: ≥ 150 $mcd \cdot m^{-2} \cdot lx^{-1}$.

The preformed road marking is applied to a flat carrier according to article 4.2.1. The coefficient of retroreflected luminance on dry conditions R_L is determined in accordance with EN 1436 Annex B.

3.4.7 Coefficient of retroreflected luminance during wetness

The minimum class of coefficient of retroreflected luminance during wetness R_L for structured white or yellow orange tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials is in accordance with EN 1436 article 4.3 table 4 RW1: ≥ 25 $mcd \cdot m^{-2} \cdot lx^{-1}$.

The determination of the minimum class of coefficient of retroreflected luminance during wetness R_L is obligatory for type II road marking and voluntary for type I road marking.

The preformed road marking is applied to a flat carrier according to article 4.2.1. The coefficient of retroreflected luminance during wetness R_L is determined according to EN 1436, Annex B.

3.4.8 Coefficient of retroreflected luminance during rain

The minimum class of coefficient of retroreflected luminance during rain R_L for structured white tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials is in accordance with EN 1436 article 4.3 table 4 RR1: ≥ 25 $mcd \cdot m^{-2} \cdot lx^{-1}$.

The determination of the minimum class of coefficient of retroreflected luminance during rain R_L is obligatory for type II road marking and voluntary for type I road marking.

The preformed road marking is applied to a flat carrier according to article 4.2.1. The coefficient of retroreflected luminance during rain R_L is determined according to EN 1436, Annex B.

3.4.9 Skid resistance SRT value

The minimum class of skid resistance for non-structured white tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials shall be in accordance with class S1 of EN 1436 article 4.5 table 8.

The preformed road marking is applied to a flat carrier according to article 4.2.1. The skid resistance is determined in accordance with EN 13036-4 using a wide slider assembly with slider 57. The measured value is the skid resistance tester value (SRT).

3.4.10 Durability on road trial, tested on the preformed road marking in a road marking assembly

The requirements for the road marking assembly are mentioned in the following table.

Characteristic	Minimum requirements				
	White permanent			Yellow orange temporary	
	Not structured		Structured	Not structured	Structured
	Type I	Type II	Type II	Type I	Type II
Luminance coefficient under diffuse illumination (Qd)	Q2	Q2	Q2	Q2	Q2
Retroreflection under vehicle headlamp illumination, Dry (RL)	R2	R2	R2	R3	R3
Retroreflection under vehicle headlamp illumination, wet (RL)	RW0	RW1	RW1	RW0	RW1
Retroreflection under vehicle headlamp illumination, rain (RL)	RR0	RR1	RR1	RR0	RR1
Skid resistance	S1	S1	S0	S1	S0
Chromaticity coordinates (x,y)	EN 1436 Table 6	EN 1436 Table 6	EN 1436 Table 6	EN 1436 Table 6 (Y2)	EN 1436 Table 6 (Y2)
Removability	NA	NA	NA	pass	pass
Minimum roll-over class where above-mentioned characteristics still comply	P5	P5	P5	T2	T2

The road marking assembly, consisting of the preformed road marking material and drop-on materials is subjected to a durability test on the road, in accordance with the G0025 guide.

The results are evaluated according to G0025.

3.4.11 Ash content

The ash content shall be declared.

The maximum accepted absolute deviation from the declared value is 3,5 percent by weight for type testing and for re-identification.

The ash content is determined in accordance with EN 1790 Annex B.

3.4.12 Thermogravimetric analyses (TGA)

For tapes the identification tests includes thermogravimetric analyses.

When assessing the identity of two thermogravimetric analyses (re-identification), all degradation steps shall occur and be in the same position on the abscissa and minor variations in the step height are tolerable.

The thermogravimetric analyses is determined in accordance with article 4.3.

3.4.13 Total mass per unit area

The total mass per unit area shall be declared or determined during the type test.

The maximum accepted relative deviation from this value is 8,0 percent by weight.

The total mass per unit area is determined in accordance with EN ISO 2286-2, but only drying if necessary and, for thermoplastic materials, at room temperature.

3.4.14 Attenuated Total Reflectance (ATR) FT-IR spectroscopy of the adhesive layer

For tapes the initial type testing includes Attenuated Total Reflectance (ATR) FT-IR spectroscopy of the adhesive layer.

When assessing the identity of two infrared spectra (re-identification), it has to be checked if all absorption-/transmission peaks are present or there are additional occurrences which are significantly different from the baseline to stand out. The relative height levels between peaks must not change significantly.

The Attenuated Total Reflectance (ATR) FT-IR spectroscopy of the adhesive layer is determined in accordance with Annex E of EN 1790.

3.4.15 Percentage organic material (in percentage by weight of the “Passing 90 µm material”)

For single layer preformed road markings type testing includes determination of percentage organic material (in percentage by weight of the “Passing 90 µm material”).

The maximum accepted absolute deviation from the initial value is 5,0 percent by weight for re-identification.

The organic content expressed as a percentage by weight of the “Passing 90 µm material” of the preformed road marking is determined in accordance with article 4.4.

3.4.16 Identification of the organic constituents

For single layer preformed road markings type testing includes determination of the infrared spectrum of the organic constituents.

When assessing the identity of two infrared spectra (re-identification) it has to be checked if all absorption-/transmission peaks are present or there are additional occurrences which are significantly different from the baseline to stand out. The relative height levels between peaks must not change significantly.

The identification of organic constituents is determined in accordance with EN 12802 Annex B.

3.4.17 Titanium dioxide content (in percentage by weight of the “Passing 90 µm material”)

For single layer preformed road markings type testing includes determination of the titanium dioxide content.

The maximum accepted relative deviation from the initial value is 20,0 percent by weight for re-identification.

The titanium dioxide content expressed as a percentage by weight of the “Passing 90 µm material” of the preformed road marking is determined in accordance with article 4.4.

3.4.18 Identification of pigment and fillers

Initial type testing includes determination of the infrared spectrum of the pigments and fillers.

When assessing the identity of two infrared spectra (re-identification) it has to be checked if all absorption-/transmission peaks are present or there are additional occurrences which are significantly different from the baseline to stand out. The relative height levels between peaks must not change significantly.

The identification of pigment and fillers, is determined in accordance with EN 12802 Annex C.

3.5 CLASSIFICATION

3.5.1 Classification

In function of the use or application the preformed road markings can be classified in:

- White tape;

- Yellow orange tape for temporary markings;

- Preformed thermoplastic road marking with drop-on materials;

- White preformed thermoplastic road marking without drop-on materials;

- White preformed cold plastic road marking.

In function of the structure the preformed road markings can be classified in:

- Structured preformed road markings;

- Not structured preformed road markings.

3.6 TYPE TESTING

3.6.1 General

3.6.1.1 The type test comprises laboratory validation of the characteristics according to articles 3.4.2 up to 3.4.8 and validation on the road trial site on the N63 in Baillonville, Belgium for the characteristic of article 3.4.9.

3.6.1.2 The type test of the identification characteristics according to articles 3.4.10 up to 3.4.18 is only required to allow a limited series of tests to be used to verify whether the manufactured or delivered preformed road marking is identical to the preformed road marking that was subjected to the entire series of tests according to articles 3.4.2 up to 3.4.8.

3.6.2 Scope

Every product article is tested. For the characteristic 3.4.9 the manufacturer can determine performances with different drop on materials and/or with different dosages of preformed road marking and/or drop on materials.

3.6.3 Requirements

3.6.3.1 At least the characteristics according to articles 3.4.2 up to 3.4.9 are determined in the type test, see also article 3.6.1.2.

3.6.3.2 The type test is performed on the samples taken during the road trials for the determination of the performances of the characteristic according to article 3.4.9.

3.6.4 Type test report

The evaluation of the results of the type test is recorded in an assessment report.

3.6.5 Validity

The type test is valid as long as the raw materials are equivalent. The equivalence of the raw materials can be verified with the identification tests on the final product.

3.6.6 Modifications

If a raw material, the composition, the production process or other relevant parameters are adjusted, the supplier must assess the influence of this modification on the characteristics of the product article, including possible changes in identification (see also article 3.6.5).

It may prove necessary in this regard to re-run the type test or a part of the type test.

3.6.7 Repeat type testing

This article is not applicable.

4 TEST METHODS

4.1 SAMPLING

4.1.1 Sampling method for representative sampling

For lot controls according to article 6.2 the sampling is according to NBN EN 13459.

4.1.2 Sampling method for spot samples

For external control of the factory production control a sample is taken from one preformed marking or from several preformed marking if the surface/weight is not sufficient.

For factory production control the manufacturer can use other method as long as he shows the method is representative for the produced batch (example given by comparing results of samples taken with this method and compared with the method of the previous paragraph).

4.2 SAMPLE PREPARATION

4.2.1 Sample preparation

For the tests 3.4.2 the white preformed thermoplastic road marking with drop-on materials is measured at the backside.

For the tests 3.4.3 to 3.4.4, the white preformed thermoplastic road marking with drop-on materials is melted and homogenized at the recommended temperature range indicated by the manufacturer.

For the tests 3.4.5 to 3.4.9, the white or yellow orange tape, white preformed cold plastic road marking, white preformed thermoplastic road marking without drop-on materials is applied to a flat substrate according to the recommendations of the manufacturer.

4.3 THERMOGRAVIMETRIC ANALYSES

4.3.1 Conditions for the TGA

From room temperature to 600 °C under inert gas with a heating rate of 10 °C/min.

A sample of the reference material (original sample for the initial test) shall be tested in parallel with a sample for identification. As TGA is performed on sample sizes in the milligram range, representative sample preparation is essential.

Before cutting the milligram range samples evaluate visually differences between original sample and sample for the identification. Note differences if any.

If multilayer preformed road marking looks similar chose milligram range samples that are as similar as possible. Determine three analyses from both the markings. The results from thermogravimetric analysis shall be presented by % weight versus temperature curves, referred to as the thermogravimetric curve, and rate of mass loss versus temperature curve, referred to as the differential thermogravimetric curve.

Superpose the different curves to evaluate differences between the two samples.

4.4 DETERMINATION OF ORGANIC MATERIAL AND TIO_2 IN THE "PASSING 90 µm MATERIAL"

4.4.1 Procedure

Separation of the binder, insoluble organic and inorganic constituents from the specimen by solvent extraction, wet sieving of the insoluble organic and inorganic constituents, centrifuging and combustion.

Apply the test method of EN 12802 Annex B. In derogation of EN 12802 Annex B:

Weigh a portion M5 of approximately at least 10 g of the marking material, carefully homogenized. Add approximately 25 ml of an appropriate solvent.

Seal the receiver with a stopper and, for thermoplastics allow to stand overnight.

Weigh the sieve of 90 µm W9. After standing, stir the contents of the receiver thoroughly, and before centrifugation sieve the solid phase by wet sieving on the sieve of 90 µm. Use an appropriate solvent for the wet sieving and rinse until the liquid becomes clear.

Dry the sieve rest on the sieve of 90 µm according to EN 12802 Annex A: W10.

Determine the "passing 90 µm material" M6 = M5 – (W10 – W9).

Process the "passing 90 µm material" as described in EN 12802 B.4.1 (centrifugation) and the obtained solid phase as described in EN 12802 B 4.3. The organic content of the "passing 90 µm material" = 100 – 100.(W5-W4)/M6.

Determine the TiO_2 content of the "passing 90 µm material" according to EN 12802 or an equivalent method.

5 PRODUCT IDENTIFICATION

5.1 PRODUCT NAME

5.1.1 Official name

Official name:

In function of the use or application the preformed road markings can be classified in:

- White tape;

- Yellow orange tape for temporary markings;

- Preformed thermoplastic road marking with drop-on materials;

- White preformed thermoplastic road marking without drop-on materials;

- White preformed cold plastic road marking.

In function of the structure the preformed road markings can be classified in:

- Structured preformed road markings: the word “structured” is added in the name example given white structured tape;
- Not structured preformed road markings: no need to mention it in the name.

5.1.2 Commercial name

The commercial name is freely chosen by the supplier insofar as it does not lead to confusion or conflict with the official name.

5.2 IDENTIFICATION

5.2.1 Delivery modes

5.2.1.1 Preformed road markings are delivered in packages or on pallet.

5.2.1.2 Each packaging unit is identified (example given per cardboard box or pallet).

5.2.2 Individual packages

The following information must be given on each packaging unit:

- name and address of the supplier and/or producer,
- name(s) of the preformed road marking,
- the quantity of the content,
- the form and dimensions,
- the batch or production number or production date,
- statements regarding the conditions for storage. If this is not the case, the label must refer to a technical datasheet specific to the preformed road marking.

5.2.3 Group of packages

There are no requirements for identification of the group of packages.

5.2.4 Shelf life

The shelf life of the preformed road marking is stated on the basis of:

- the date preceded by the words: ‘Best before …’ when the date includes an indication of the day, ‘Best before end …’ in other cases,

- or on the basis of the production date and the shelf life in months or years.

5.3 DELIVERY NOTE

5.3.1 Information

Each delivery of preformed road marking is additionally accompanied of the delivery note.

The following information is given on each delivery note:

- name and address of the supplier and/or producer,
- name of the customer,
- name(s) of the preformed road marking,
- date of loading,
- quantity of preformed road marking.

6 ASSESSMENT OF DELIVERIES

6.1 PRODUCT CHECK BY THE CUSTOMER ON DELIVERY

6.1.1 Check by the customer

On receipt of the preformed road marking, the customer checks:

- compliance of the delivery note with the ordered goods;
- in case of individual packages, compliance of the identification of the product with the delivery note.

If the preformed road marking is delivered under the voluntary BENOR mark, the conformity of the product is demonstrated and article 6.2 does not apply.

6.2 LOT CONTROL BEFORE DELIVERY

6.2.1 General

The aim of a lot control is to check whether there is sufficient confidence that the characteristics of the preformed road markings of a supplied lot comply with this PTV.

6.2.2 Sampling

6.2.2.1 Sampling is carried out in principle by an impartial body or by the recipient (generally a road authority) on the supplier's premises.

6.2.2.2 Sampling is carried out according to article 4.1.1 and is representative of the entire lot.

6.2.3 Lot size and number of samples

Number of samples are according to EN 13549.

6.2.4 Checking

At least all the characteristics of articles 3.4.2 up to 3.4.9 are tested.

6.2.6 Processing of the preformed road marking

The preformed road markings of a lot may only be processed after all the results of the test are known and satisfactory.

7 PROCESSING OF THE PRODUCT (informative)

7.1 STORAGE OF THE PRODUCT

7.1.1 Storage conditions

The storage conditions shall be mentioned on the label or on the technical datasheet specific to the preformed road marking (see also article 5.2.2). The preformed road marking should best be used within the recommended shelf life, see article 5.2.4.