



GRAVITY SEWERAGE MADE  
OF THERMOPLASTIC MATERIALS

> CERTIFICATION

# Sewerage systems

NF certification by the CSTB:  
a guarantee of product performance



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# The NF 442 quality mark ensures the quality and durability of your gravity sewerage systems

Thermoplastic pipes are especially suitable for sewerage systems. Public and private principals need to have durable, reliable products installed, the project managers want to secure their projects and avoid problems on the worksite, while manufacturers want

easy access to calls for tender. The NF 442 quality mark, easily identifiable, issued by the CSTB\*, an independent and impartial organization, meets this need for trust.

\* The CSTB is authorized by AFNOR Certification to issue the NF 442 mark.

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## Simplified procedures for all

The NF 442 certification:

- › facilitates responses to public calls for tenders by manufacturers,
- › facilitates the choice of products by public buyers, as NF 442 certified products comply with the requirements of Section 70 of the General Technical Specifications (Fascicule 70),
- › prevents the necessity of testing each batch of products as required by Section 70 of the General Technical Specifications for uncertified products.

## Performance verified on the basis of guidelines developed by the CSTB

- › The guidelines of the NF 442 mark apply to thermoplastic products used for sewerage systems that are 100% NF-certified. Prime contractors demand durability of drainage systems of at least 50 years. The NF 442 mark certifies the technical maturity of the certified products, in compliance with the following product standards, which form the basis of the certification standard:
- › In addition to compliance with European standards, the certification guidelines of the NF 442 mark certify that the components comply with additional requirements, such as:
  - 1. The parameters required to size the structure**
  - 2. The maximum depth of the inspection chambers and connection boxes**
  - 3. The compressive strength of the load distribution slabs of the inspection chambers**
  - 4. The mechanical behavior of the inspection chamber steps and ladders.**

The guidelines of the NF 442 mark are available on the website of the CSTB:

<http://evaluation.cstb.fr/certifications-produits-services/produit/assainissement-gravitaire-materiaux-thermoplastiques>

## Certified characteristics

The following characteristics undergo type tests or annual or semiannual inspections in the laboratories of the CSTB or in the laboratories of the plant, in the presence of auditors.

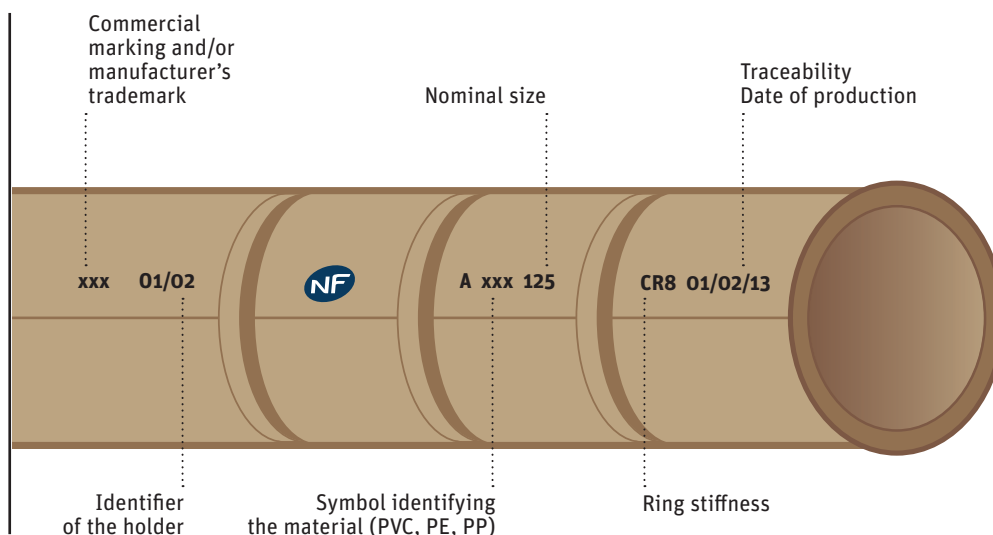
Depending on the products and materials, the following characteristics are certified:

Products concerned	Characteristics certified
<b>Pipes and fittings</b> <ul style="list-style-type: none"><li>- <b>NF EN 13476-1 and 2</b> Structured-wall piping systems with smooth internal and external surface</li><li>- <b>NF EN 13476-1 and 3</b> Corrugated pipes and fittings</li><li>- <b>NF EN 1401 -1</b> Compact PVC pipes and fittings</li><li>- <b>NF EN 1852-1</b> Polypropylene pipes and fittings</li><li>- <b>NF EN 12666-1</b> Polyethylene pipes and fittings</li></ul>	<b>Fitness for purpose</b> <ul style="list-style-type: none"><li>&gt; Leaktightness of elastomeric sealing ring type joints,</li><li>&gt; Sizing characteristics,</li><li>&gt; Ring stiffness,</li><li>&gt; Melt flow rate,</li><li>&gt; Ring flexibility,</li><li>&gt; Tensile strength of the weld seam,</li><li>&gt; Impact test,</li><li>&gt; Leaktightness of the saddle with locking,</li><li>&gt; Flexibility or mechanical strength.</li></ul> <b>Materials</b> <ul style="list-style-type: none"><li>&gt; Longitudinal heat reversion,</li><li>&gt; Quality of the elastomer sealing rings,</li><li>&gt; Tensile test on assemblies made by welding or melting,</li><li>&gt; Heat behavior,</li><li>&gt; Density,</li><li>&gt; Vicat hardness,</li><li>&gt; Melt flow rate,</li><li>&gt; Oxidation induction time.</li></ul>
<b>Manholes, inspection chambers and connection boxes</b> <ul style="list-style-type: none"><li>- <b>NF EN 13598-1</b> Inspection chambers</li><li>- <b>NF EN 13598-2</b> Manholes and inspection chambers</li></ul>	<b>Fitness for use</b> <ul style="list-style-type: none"><li>&gt; Sizing characteristics,</li><li>&gt; Structural integrity,</li><li>&gt; Impact test,</li><li>&gt; Ring stiffness of the elevation,</li><li>&gt; Steps of the ladder: resistance to vertical loads and horizontal tension,</li><li>&gt; Compressive strength of the load distribution slab,</li><li>&gt; Holding power of the anchors of the distribution slab hoisting rings,</li><li>&gt; Leaktightness of the joints of the various components.</li></ul> <b>Materials</b> <ul style="list-style-type: none"><li>&gt; Tensile characteristics</li><li>&gt; Thermal stability</li><li>&gt; Vicat hardness</li><li>&gt; Melt flow rate</li><li>&gt; Oxidation induction time</li><li>&gt; Quality of the elastomer sealing rings.</li></ul>

## Marking you can trust

- > The certificates substantiate that the NF 442 quality mark has been obtained and indicate all of the certified characteristics that are specific to each product.
- > The clarity of the certified characteristics enables specifiers or users to make the best choices at an early stage for the execution of the construction project.
- > The certificates are available on the website of the CSTB, at the following link: <http://evaluation.cstb.fr/certifications-produits-services/produit/assainissement-gravitaire-materiaux-thermoplastiques>
- > NF 442 certified products can be identified by special marking.

### EXAMPLE OF MARKING FOR A PIPE



## Characteristics certified by the CSTB

- > With the NF 442 mark, you are sure to purchase products with objectively certified performance levels.

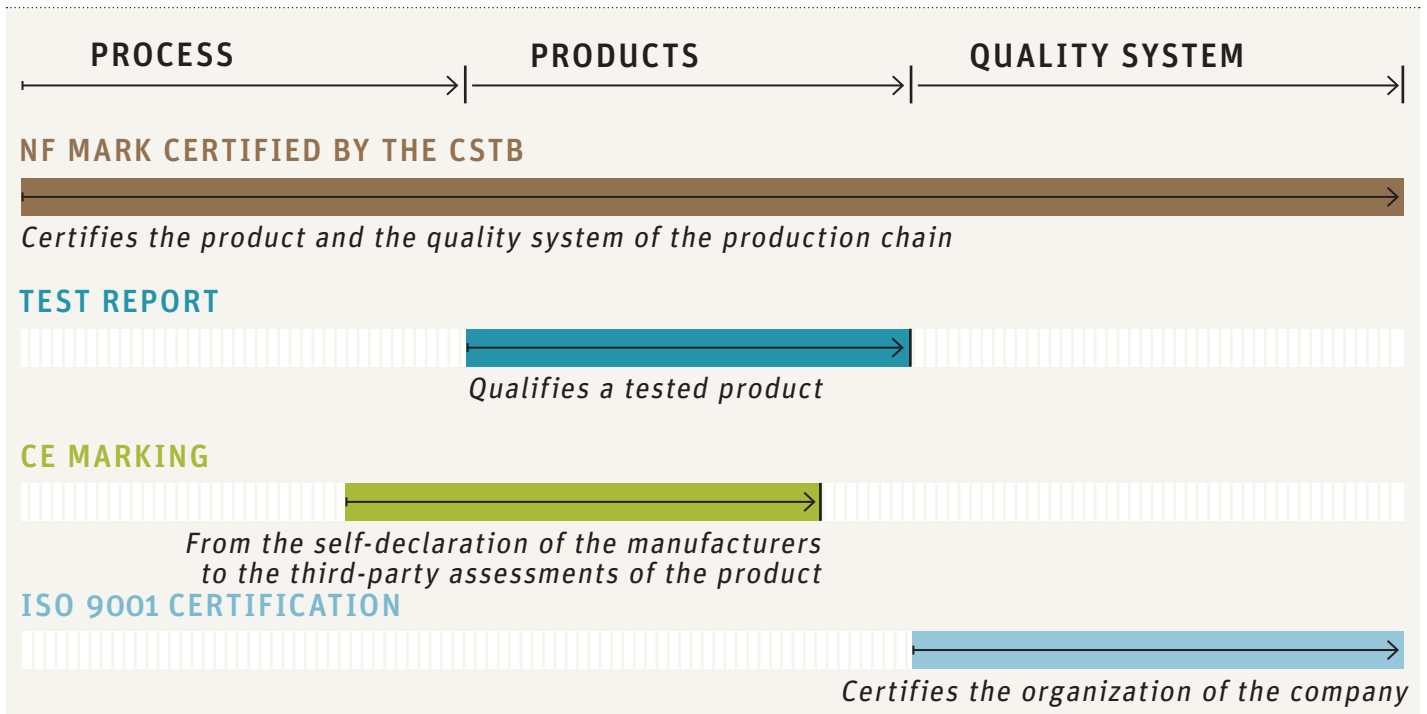
The CSTB (Scientific and Technical Center for Building), an independent certification body certified by COFRAC (the French national accreditation body), is authorized by AFNOR Certification to issue the NF 442 mark "Gravity sewerage made of thermoplastic materials."

For this purpose, it verifies the compliance of products with the requirements of the certification guidelines of the NF 442 mark. This mark is available to all applicants whose products fall within the scope of application of the standard. The outcome of the verification (audits and tests) is examined twice a year during the mark's special committee meeting.

Led by the CSTB, the special committee of the mark is made up of experts who are representative of the profession, such as industrial companies, specifiers, users and government agencies.



## Mark the difference



<b>NF mark</b>	<p><b>Gravity sewerage made of thermoplastic materials (NF 442)</b></p> <ul style="list-style-type: none"><li>› The NF mark is a voluntary procedure that guarantees the user that the product complies:<ul style="list-style-type: none"><li>- with the product standards and thus the concerned areas of application</li><li>- with any additional requirements</li><li>- with all of the requirements of the certification standard, which includes the quality management requirements, allowing continuous control of the production process.</li></ul></li><li>› For all of the verifications, the NF mark requires inspection by a third-party organization. In this instance, the organization is the CSTB - the Scientific and Technical Center for Building, a public stakeholder serving innovation in construction and one of the first European certifiers of construction products, which grants the right to use the NF 442 mark.</li></ul>
<b>Test report</b>	<ul style="list-style-type: none"><li>› <b>A test report providing the results of measurements.</b> The test report is not a certification of products within the meaning of Article L 115-27 of the Consumer Code.</li></ul>
<b>CE marking</b>	<ul style="list-style-type: none"><li>› CE marking is the responsibility of the manufacturers, who must declare the performance of the key characteristics of their products, which are regulated.</li><li>› To date, components that are certified NF 442 are not subject to CE marking.</li></ul>
<b>ISO 9001 Quality System Certification</b>	<ul style="list-style-type: none"><li>› The ISO 9001 certification <b>certifies a company's quality management system.</b> It enables the manufacturer to substantiate that its organization enables the company to meet its customers' requirements.</li><li>› The ISO 9001 certification is not a product certification.</li></ul>



Where can you get  
NF 442 certified products?

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Pipes, fittings, manholes, inspection chambers:  
From companies whose products bear the  
NF 442 mark.

The list of NF442 certified products  
is available at:

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**[www.marque-nf.com](http://www.marque-nf.com)** and **[www.evaluation.cstb.fr](http://www.evaluation.cstb.fr)**.  
([evaluation.cstb.fr/certifications-produits-services/  
produit/ assainissement-gravitaire-materiaux-  
thermoplastiques.](http://evaluation.cstb.fr/certifications-produits-services/produit/assainissement-gravitaire-materiaux-thermoplastiques))



Installing a  
corrugated pipe.

**CONTACT**  
**PIPING SYSTEMS**  
> [NF442@cstb.fr](mailto:NF442@cstb.fr)

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**SCIENTIFIC AND TECHNICAL CENTER FOR BUILDING**  
84 avenue Jean Jaurès – Champs-sur-Marne – 77447 Marne-la-Vallée cedex 2  
Tel: +33 (0)1 64 68 82 82 – [www.cstb.fr](http://www.cstb.fr)  
MARNE-LA-VALLÉE / PARIS / GRENOBLE / NANTES / SOPHIA ANTIPOLIS

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*le futur en construction*