

**THE MINISTRY OF DEVELOPMENT, PUBLIC WORKS AND
ADMINISTRATION**

PERMANENT TECHNICAL COUNCIL FOR CONSTRUCTION

TECHNICAL NOTICE

based on minutes No. 62473 of May 24, 2022 of the Commission

technical specialty No. 2 for the approval of technical approvals 1 in constructions:

PERMANENT TECHNICAL COUNCIL FOR CONSTRUCTION

ADVISE FAVORABLE:

Technical Approval No. 017-05/3681-2022, developed by the EUROPEAN
INSTITUTE FOR THERMAL STALLS, for CROSS-LINKED
POLYETHYLENE PIPES (PE-Xa), brand INNOPEX, FOR SANITARY AND
HEATING INSTALLATIONS, produced by SC INNOTUBE SRL, Odorheiu
Secuiesc, Harghita county.

This TECHNICAL NOTICE is valid until May 24, 2024 and can extend it in the situation where the holder proves the ability to use the the object of the technical approval, according to the provisions relating to the "conditions" of technical approval.

Based on this technical opinion, the pipes can be used for the destination expected in contact with drinking water only accompanied by the sanitary notice and notification issued by the National Institute of Public Health.

The technical approval is valid until May 24, 2025, for the owner, manufacturer and distributors from the annex to the technical approval.

**PRESIDENT OF THE PERMANENT TECHNICAL COUNCIL FOR
CONSTRUCTION**

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**MINISTRY OF DEVELOPMENT, PUBLIC WORKS AND
ADMINISTRATION**

PERMANENT TECHNICAL COUNCIL FOR CONSTRUCTION

**PIPES FROM RETICULATED POLYETHYLENE (PE-Xa), brand
INNOPEX, FOR SANITARY AND HEATING INSTALLATIONS INNOPEX
TUY AUX EN POLYETHYLENE RETICULE (PE-Xa) POUR
INSTALLATIONS SANITAIRES ET DE CHAUFFAGE INNOPEX
CROSSLINKED POLYETHYLENE (PE-Xa) PIPES FOR PLUMBING AND
HEATING INSTALLATIONS**

**INNOPEX VERNETZTES POLYETHYLEN (PE-Xa) ROHRE, FUR
SANITAR UND HEIZUNGS**

category code 28 and 29

MANUFACTURER: SC INNOTUBE SRL

Str. Vulturului, no. 14, Postal code 535600
Odorheiu Secuiesc, County Snort
Phone: + 4 0266 219 410; + 0745 206 161

HOLDER LEISURE TECHNICAL:

SC INNOTUBE SRL

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TECHNICAL APPROVAL DEVELOPER:

EUROPEAN INSTITUTE FOR THERMAL SCIENCES BUCHAREST

Str. Matei Voivode no. 29, sector 2, Bucharest, Romania

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SPECIALIZED GROUP NO. 5

"Products, processes and equipment for installations related to the constructions of:
heating, air conditioning, ventilation, sanitary, gas, electric"

**This technical approval is valid until 24.05.2025 only accompanied by the
TECHNICAL APPROVAL of the Permanent Technical Council for Constructions and
does not take the place of a quality certificate**

PERMANENT TECHNICAL COUNCIL FOR CONSTRUCTION

Specialized group no. 5 "Products, processes and equipment for installations related to
the constructions of: heating, air conditioning, ventilation, sanitary, gas, electrical" from
the European Institute for Thermal Sciences from Bucharest, analyzing the technical
approval request documentation, presented by SC INNOTUBE S.R.L. from Odorheiu

Secuiesc and registered with no. 2220323 of 24.03.2022, regarding "cross-linked polyethylene (PE-Xa) pipes, Innopex brand, for sanitary and heating installations" made by SC INNOTUBE S.R.L. elaborates the present Technical Approval no. 017-0513681-2022, in accordance with Romanian technical documents related to the field of reference: I9 - 2015 "Regulations on the design, execution and operation of sanitary installations related to buildings", I 13 - 2015 "Regulations on the design and execution of heating installations central ", NP 084 - 2003 „ Regulations for the design, execution and operation of sanitary installations and water supply and sewage systems using pipes made of plastic materials " and with the checks carried out by the INSIST Laboratory in Bucharest, all valid at the date of the preparation of this leisure.

1.1. Brief description

Cross-linked polyethylene pipes (PE-Xa) are manufactured by SC INNOTUBE SRL from Odorheiu Secuiesc and are used for sanitary installations (cold and hot drinking water) and heating installations.

Cross-linked polyethylene (PE-Xa) pipes are produced in the following range:

- without barrier against oxygen diffusion;
- with the barrier against oxygen diffusion.

The pipes are made by the process of extrusion (monolayer pipes) and coextrusion (multilayer pipes), using the technology of crosslinking with peroxide ($C_{16}H_{30}O_4$).

Cross-linked polyethylene pipes (PE-Xa) are made from pure, non-recycled, white polyethylene granules with a degree of reticulation of at least 70%.

Protective layers (oxygen barrier - EVOH, polyethylene) are added to the outside of the PE-Xa pipe, over the nominal thickness of this one.

PE-Xa pipes are produced, with or without protective layers, in a range of external diameters (De) 16 - 32 mm, with nominal pressures of 6 bar, 10 bar.

The cross-linked polyethylene pipes (PE-Xa) manufactured by SC INNOTUBE SRL bear the commercial name INNOPEX and are made in a range of sizes that include:
+ monolayer PE-Xa pipes, without barrier against oxygen diffusion, with the following characteristics:

- Up to 6 bar, with dimensions (outer diameter x wall thickness):
16 x 2.0 mm, 17 x 2.0 mm,
20 x 2.0 mm, 25 x 2.3 mm,
32 x 2.9 mm;
- Up to 10 bar, with the dimensions (outer diameter x wall thickness):
16 x 2.2 mm, 17 x 2.4 mm,

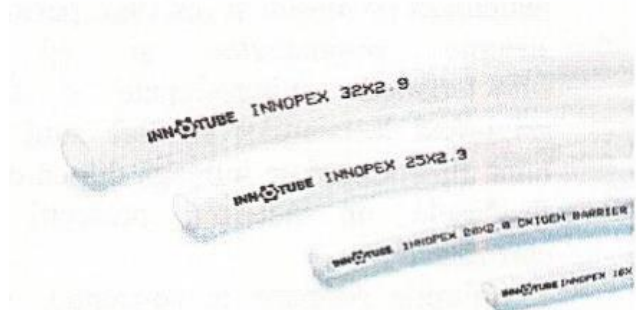
20 x 2.8 mm, 25 x 3.5 mm,
32 x 4.4 mm.

+ PE-Xa multilayer pipes, with an oxygen barrier layer (EVOH) against oxygen diffusion and a polyethylene protective layer, with the following characteristics:

- Up to 6 bar, with the dimensions (external diameter x wall thickness + protective layer thickness):

16 x 1.8 (+0.2) mm, 17 x 1.7 (+0.3) mm,
20 x 1.7(+0.3) mm, 25 x 2.0(+0.3) mm,
32 x 2.6 (+0.3) mm.

Cross-linked polyethylene pipes (PE-Xa)



1.2. Product identification

PE-Xa pipes, manufactured by SC INNOTUBE SRL from Odorheiu Secuiesc, are white in color and are automatically marked during manufacture, by hot printing, with a color different from the basic one, indicating:

- name of the manufacturer;
- the manufacturing line code;
- date of manufacture;
- product characteristics (material, nominal diameter, pressure, etc.).
- producer information and traceability data.

2. Technical Approval

2.1. Areas of use accepted in construction:

Cross-linked polyethylene (PE-Xa) pipes, brand INNOPEX manufactured by SC INNOTUBE SRL are used for the following installations inside buildings:

- cold and hot water supply installations

For consumption;

- heating installations with static bodies (through radiator-type heating bodies) or by radiation with radiant surfaces (in the floor, walls or ceiling).

The maximum pressure of use is 10 bar.

Maximum allowed temperatures:

- hot drinking water: +60°C
- thermal agent (heating with bodies of heating): +90°C

Cross-linked polyethylene (PE-Xa) pipes do not it is used at negative temperatures.

For the use in contact with drinking water of cross-linked polyethylene (PE-Xa) pipes, brand Innopex, manufactured by the company INNOTUBE SRL,

the holder of the technical approval must have a sanitary permit issued according to the composition of the materials that come into contact with water potable, by the National Institute of Public Health, in accordance with the regulations issued by the Ministry of Health.

2.2 Product reviews

2.2.1 Ability to use in construction

The characteristics of the PE-Xa pipes, manufactured by SC INNOTUBE SRL, have been verified through specific tests by the own laboratory and by external laboratories (INSIST-UTCB) and correspond to the field of use, the Romanian technical prescriptions as well as the requirements listed in art 5 of the Law no. 10/95 republished with subsequent changes and additions regarding quality in construction.

• Mechanical resistance and stability

Cross-linked polyethylene pipes (PE-Xa) manufactured by SC INNOTUBE SRL are made on high-performance machines and installations, with automated systems and keep dimensional and functional characteristics, ensuring the installations in which they are installed good operation during the entire period of use.

The products do not require protection against corrosion.

The solutions adopted in the design of the pipes from cross-linked polyethylene (PE-Xa) such as the crosslinking technology with peroxide (C16H30O4), gives the products mechanical strength, resistance to abrasion and stability under normal operating conditions.

The qualities of resistance and stability also result from the lifetime of the product declared by producer.

• Fire safety

For PE-Xa pipes they were not performed specific checks for determination behavioral performance at fire.

• Hygiene, health and environment

The materials do not contain harmful substances human health or environmental integrity surrounding, they fully correspond the conditions imposed by: the Security Law and Health at Work no. 319/2006 (amended by Law no. 198/2018), Protection Law Environment No. 265/2006, with the changes and subsequent additions, O.U.G 92/2021 regarding repeal of Law 211/2011 on the regime of waste, Ordinance 2/2021 regarding waste storage, Insurance Law for work accidents and occupational diseases No. 346/2002 (amended by O.U.G. No. 103/2017), HG No. 856/2002 regarding records waste management and for the approval of the list comprising waste, including waste dangerous, Hygiene and health norms public regarding the living environment of the population, published in WHO No. 119/2014 (amended by OMS no. 994/2018), OMS no. 275/2012 regarding approval of the "Sanitary regulatory procedure for placing products on the market, materials, chemical substances/mixtures equipment used in contact with potable water ". For the manufacture of products in contact with drinking water will be used only pure (non-recycled) raw materials.

- **Safety and accessibility in operation**

Safety in operation of pipes from cross-linked polyethylene (PE-Xa) is fulfilled through their initial constructive measures.

The products have dimensional stability when the temperature increases, ensuring good operation of the installations in which they are installed the entire duration of use.

The products are still made this way; in operation, does not require maintenance. If respects the fulfillment of all the conditions of installation imposed by the manufacturer and the regulations Romanian laws in force are considered good safety in operation.

Protection against noise

Cross-linked polyethylene (PE-Xa) pipes do not affect this requirement.

- **Energy saving and thermal insulation**

Cross-linked polyethylene (PE-Xa) pipes do not are subject to special insulation requirements

thermal and water-repellent, the energy involved in the manufacture of cross-linked polyethylene pipes is about 5 times lower than that used for metal products similar.

- Sustainable use of natural resources

It will be applied according to law 10/1995 regarding quality in construction, with changes subsequent additions.

2.2.2. Product durability and maintenance

The qualities of the materials used and the control manufacturing, carried out for the purpose of maintenancequality constants, allow the realization of some products with high durability.

Average lifespan, recommended by producer is 30 years old, provided compliance with the instructions for choice, installation, operation, transport, storage and disposal, presented by him.

The manufacturer grants a mmim guarantee
10 years from the date of delivery.

The manufacturer's warranty is valid on the condition that the operating parameters imposed by it are respected.

2.2.3. Manufacturing and control

The quality of the production is ensured by performing a permanent control, both for compliance with technological parameters, as well as for the finished product.

The pipes are made by extrusion/ coextrusion, through a chemical process of cross-linking, using peroxide technology ($C_{16}H_{30}O_4$). The level of reticulation is minimal 70% The products are manufactured in according to the manufacturing procedure a the manufacturer.

Ensuring the constant quality of the products is made by executing an internal control, in in accordance with the Management System of Quality and with the specifications from the Manual Quality control prepared with respect recommendations from ISO 9001:2015.

The company SC INNOTUBE SRL has implemented and Quality Management System certificate in accordance with the recommendations of the standard ISO

9001:2015 (certificate no. 169C valid until on 20.03.2025), by the body of WERT AUDIT SRL certification from Bucharest.

At the same time, an external control is performed units, of neutral laboratories.

2.2.4. Implementation

Putting PE-Xa pipes into operation

perform in accordance with the data presented by the manufacturer in the assembly instructions and in compliance with the provisions of the Romanian technical regulations I 9-2015, I 13-2015 and NP 084-2003.

The product is assembled according to the project.

All these operations must be done alone by experienced, qualified people for such works and according to installation instructions developed by manufacturer, complying with the requirements of the regulations Romanian laws in force.

2.3. The notebook of technical prescriptions

2.3.1. Conception conditions

When developing the manufacturing technology, considering obtaining and keeping constant a the properties and characteristics of the products.

For this, the rules of verification of the quality declared in the System Quality Management, in the Manual of Quality control and quality policy, manufacturer's own, the products are designed in such a way that they respect the requirements of the legislation in the field, as well as the requirements of Law no. 10/1995 regarding quality in construction, with additions and modifications later, these being presented in subsection 2.2.1. of technical leisure.

2.3.2. Manufacturing conditions

Manufacture of PE-Xa pipes, brand Innopex is made based on the company standard, SF 1/2019, developed by the producer SC INNOTUBE SRL, at the quality level declared by him. The manufacturer will perform periodic checks, in order to confirm maintaining the specified characteristics. Every the product will be marked accordingly.

2.3.3. Delivery conditions

Upon delivery, the products must be accompanied by the health certificate (issued for products depending on the composition of materials that come into contact with drinking water), the declaration of compliance with this technical approval, given by the manufacturer, according to the Romanian legislation in force, SR EN ISO/CEI 17050-1:2010 standards . Conformity assessment. Declaration of conformity given by the supplier. General requirements and SR EN ISO/CEI 17050-2:2005. Conformity assessment. Declaration of conformity given by the supplier. Support documentation, as well as installation instructions.

The PE-Xa pipes are delivered in the form of bars, with a length of 6 meters or in coils, with or without unwinding drum, with lengths of 50, 100 and 200 m.

The manufacturer will provide the instructions of use, as well as the data regarding, conditions of transport, storage, assembly and operation.

2.3.4. Conditions for commissioning

The commissioning will be carried out with respect the manufacturer's instructions and the following technical regulations 'in force' in Romania:

- I 9-2015. Design regulations, execution and exploitation of sanitary installations related to buildings;
- I 13-2015. Normative regarding the design and execution of central heating installations.
- NP 084-2003. Normative for the design, execution and operation of sanitary installations and water supply and sewage systems using pipes made of plastic materials.

Conclusions

Global appreciation

• **Use of reticulated polyethylene pipes (PE-Xa), Innopex brand, for installations sanitary and heating" manufactured by the company INNOTUBE SRL from Odorheiu Secuiesc, accepted fields of use is appreciated favorable, in the specific conditions in Romania, if the present provisions are respected leisure. For use in contact with drinking water a cross-linked polyethylene (P E-Xa) pipes, branded as Innopex, manufactured by INNOTUBE SRL, the holder of the technical approval must have health certificate (depending on the composition materials that come into contact with water potable) issued by the National Institute of Public Health, in accordance with regulations issued by the Ministry of Health.**

Conditions

- Product quality and manufacturing methods, have been examined and found appropriate by the INSIST - UTCB Testing Laboratory from Romania and must be maintained at this level throughout the validity of this approval
- Wherever reference is made in this agreement to legislative acts or technical regulations must be taken into account that they were in force at the time this agreement was drawn up.
- Granting this approval, the Technical Council Permanently for Construction, does not get involved in the presence and/or absence of legal rights of the company to sell, install or maintain the products.
- Any recommendation regarding the use of safety conditions of these products, which is contained or refers to this technical approval, represent minimum requirements necessary for its implementation.
- European Institute for Thermal Sciences from Bucharest is responsible for the accuracy of the data registered in the Technical Approval and the tests or the tests that were the basis of this data.

Technical approvals do not absolve the suppliers and/or users of their responsibilities according to the legal technical regulations in force.

- The opportunity to develop the technical approval is established by the European Institute for Thermal Sciences from Bucharest,
- Verification of maintaining the ability to use a of the products will be made by the manufacturer, according to the program established by the Institute European for Thermal Sciences from Bucharest, program consisting of:
 - checking the appearance and dimensions;
 - tightness check.

The checks will be carried out at an interval of 24 months and will be recorded in bulletins attempts. At the same time, a process will be drawn up verbally signed by the owner, the laboratory that carried out the checks and prepared the technical approval. The validity of the Quality Management System at the manufacturer will also be checked.

- The actions included in the program and their method realization will respect the normative acts and the technical regulations in force.

- European Institute for Thermal Sciences from Bucharest will inform the Technical Council Permanent for Constructions about the results of the checks, and if they do not prove the maintenance of suitability for use, MDLP A will request the cancellation of the technical approval from the database.

- Cancellation of the permit will also be done in case findings through controls, carried out by market surveillance bodies, a non-compliance with the constant maintenance of the conditions of manufacturing and use of the product.

- If the holder of the technical approval does not comply with the provisions of the technical approval, the drafting body requests the withdrawal of the technical approval and cancellation from the MDLPA database.

The validity of the technical approval is:

05/24/2025

The validity of the technical approval is: 24.05.2024

The extension of the validity of the technical approval must requested at least three months before the date expiration, in case the validity of the technical approval is not extended, the technical approval is automatically cancelled.

The modification/extension of the technical approval will be done in compliance with the initial validity period.

President of the specialized group

Dr. engineer Daniela Teodorescu

European Institute for Thermal Sciences

Executive Director

Dr. engineer Anica Ilie

Signature and stamp with the inscription European Institute for Thermal Sciences