

MOLECOR
Smart water

SANECOR

Maximum efficiency for sewage networks

A global and versatile system for sewage and drainage

SANECOR® piping was made up of two layers, he outer being corrugated and the inner smooth. Right from the beginning, this piping was designed to be a highly sustainable product intended to fully satisfy sewage network requirements. **SANECOR®** PVC pipes with structured double layer wall, smooth inside and corrugated outside: nominal diameters (in mm) DN 160 – DN 1200, in 6 and 3 m lengths. **Nominal rigidity SN8** (≥ 8 kN/m^2).

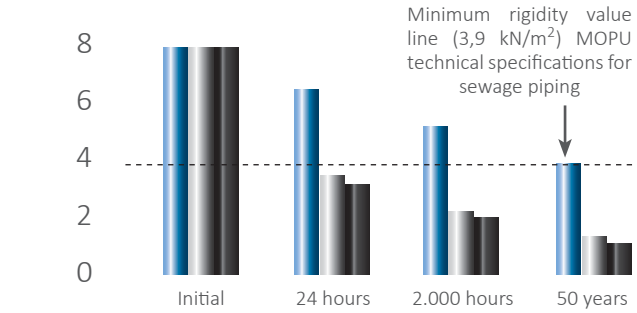
The system is completed with:

- Special PVC parts for the entire range of diameters: sleeves, elbows, branches, extensions and covers.
- SN8 corrugated parts in DN630 to DN1200.
- Connections using elastomer clips for the entire range of diameters, mechanical clips with elastic seal (DN160 and 200 in collectors DN315 and 400), and junctions stuck at 45° and 90° for manifolds up to DN500. Drill bits DN160, 200 and 250 are also included.
- Prefabricated inspection manholes with ready-installed or without rungs in diameters 800, 1000 and 1200, and depths of up to 6 meters. Connectivity to the manifold can be made by direct connections to the body of the manhole, by means of a base that can be fitted to the key of the manifold, either straight or with a change of direction, and by means of connecting pieces with full bore, with PVC welded elements. Manholes and inspection wells in 600 y 800 diameters are also included.
- Direct-pass and triple-entry cofferdams for thrusts in diameters DN160 and 200 wastebox.
- It is also possible to manufacture a wide range of customized traps and manholes for multiple applications: sample connections, grease separators, siphon traps, manholes, etc.

Code	DN (mm)	Piping outside Ø	Piping inside Ø	Max. outisde cup Ø
1111818	160	160	146	182
1111819	200	200	182	228
1111820	250	250	228	284
1001998	315	315	285	358
1111822	400	400	364	448
2130991	500	500	452	563
1002147	630	649	590	734
1002148	800	856	775	954
1002149	1000	1072	970	1222
1127518	1200	1220	1103	1379

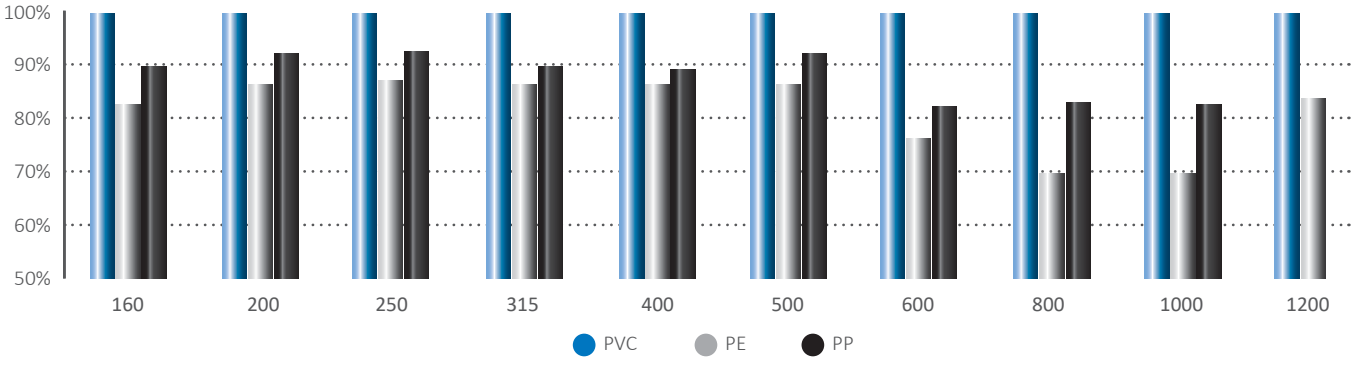
The pipe is available in both 6 and 3 m, and is supplied in tile colour (RAL 8023).

Development of rigidity SCR over time according to DIN 169611



	Initial	24 hours	2.000 hours	50 years
PVC SN8	8,0	6,7	5,3	4,0
PE SN8	8,0	3,8	2,4	1,5
PP SN8	8,0	3,6	2,1	1,2

Average flow rate differences in percentage of SN8 corrugated pipe (100% basis for SANECOR® pipe)



Characteristics of the SANECOR® pipe

Short and long term rigidity

SANECOR® pipe, with **SN8 nominal stiffness**, achieves very high actual values of **Specific Circumferential Rigidity (SCR)** of around 10 kN/m². This allows to withstand significant earth loads (great depths) and traffic loads without deformation. Moreover, the stiffness remains high in the long term, due to the low creep coefficient of PVC, unlike other plastics which, having high creep coefficients, suffer significant deformations over time, as their stiffness values drop too much, as shown in the graph below.

The creep coefficient indicates the evolution of the elastic modulus ($\mathbf{E_c}$) of plastic materials over time, and this evolution directly conditions the value of the stiffness over time, as shown in the formula above, where **I** is the moment of inertia, which is a function of the pipe wall thickness, and $\mathbf{D_m}$, the mean diameter.

$$RCE = \frac{E_c \times I}{D_m^3}$$

Chemical resistance

SANECOR® pipe has very high resistance to most products present in wastewater. PVC is especially **resistant to the attack of grease, mineral oils and fuels**, which are so frequent in urban runoff water. Furthermore, this pipe is inert and cannot rust due to aerobic corrosion or suffer anaerobic corrosion caused by the components and microorganisms of the circulating water and the surrounding soil.

Abrasion resistance

The low roughness coefficient of this pipe greatly favours its abrasion behaviour. In addition, the lack of porosity of the internal surface prevents incrustation of materials contained in the wastewater and rainwater.

Joint sealing

SANECOR® system uses a socket joint, in which the socket, integrated into the pipe, maintains the sealing properties of the pipe and it incorporates a **bi-bivalve gasket** (up to DN500) **that ensures good mounting and reinforces the tightness**.

Hydraulic capacity

In addition to the low friction of the water with the conduction that plastic materials have, **SANECOR®** pipe has external diameters greater than the nominal value in DN > 500 mm, and it also has profiles of low thickness compared to other similar pipes. This is due to the fact that, in the mentioned stiffness formula, the moment of inertia does not require a high value, as PVC has a high elastic modulus. The hydraulic capacity of **SANECOR®** pipe is the highest of **SN8** structured pipes, as can be seen in the graph *"Average flow rate differences in percentage of SN8 corrugated pipe"*.

Performance, cost and installation safety

This pipe is lightweight and results in very low handling and assembly costs, as there are **significant savings in both machinery and personnel required during installation**. For the same reason, the execution performance is very high, which results in a reduction of the time and therefore of the fixed costs of the work. **Another advantage of the low weight of these pipes is the greater safety of the personnel carrying out the installation**. For deep pipelines where the shoring of the trench walls is necessary, the dwell time of the operators is critical for site safety.

SANECOR® piping technical sheet

Physical and chenical features	
Density	1.350 ÷ 1.520 kg/m^3
Linear dilation coefficient	8 x 10^{-5} m/m °C
Thermal conductivity	0,13 kcal/m.h. °C
Specific heat	0,2 ÷ 0,3 cal/g. °C
Vicat softening temperature	≥ 79 °C, according to UNE-EN ISO 2507-1
pH limits	Between 3 and 9, at 20 °C
Average B-onset processing temperature	≥ 185 °C, according to ISO 18373-1 (DSC)
Heat behaviour	According to 12091

Mechanical features	
Annular stiffness (SCR = Specific Circumferential Rigidity)	SCR ≥ 8 kN/m^2, according to UNE-EN ISO 9969. The actual value is almost always higher than 10 kN/m^2
Creep coefficient at 2 years	≤ 2,5, according to UNE-EN ISO 9967. The actual value is less than 1.8
Impact resistance	According to UNE-EN ISO 3127 (Clock sphere method)
Annular flexibility	30% deformation in DN160 to DN315 and 20% in DN400 à DN1200, according to UNE-EN ISO 13968

Hydraulic features	
Sealing with internally pressurised elastomer joint	Tests at 0.5 bar with angular deviation and diametrical deflection, according to UNE-EN ISO 13259
Sealing with joint in internal depression	Tests at-0.3 bar with angular deviation and diametrical deflection, according to UNE-EN ISO 13259
Equivalent rugosity (Prandtl-Colebrook)	K= 0.01 mm (for clean water) K= 0.10 ÷ 0,25 mm (for waste water)

Product sustainability

Regarding corrugated piping, the highest energy saving is that of **SANECOR® SN8** corrugated piping because despite its weight is greater than PE and PP piping, it optimises the diameter required in relation to the latter two and it has lower manufacturing consumption both in raw materials and the piping. For the same reason, it is **the most ecological piping from the CO_2 atmospheric emission point of view**.

Standards and certification

The product standard for **SANECOR®** corrugated PVC piping is UNE-EN 13476: "*Channelling systems in plastic materials for buried non-pressurised underground drainage and sewerage*". **SANECOR®** piping bears AENOR marking according to Certificate No 001/005573. Furthermore, the production centre holds **AENOR Management Quality Certificate ISO 9001**, No ER0440/1996, and **Environmental Management ISO 14001**, No GA-2001/0255.

MOLECOR
Ctra. M-206 Torrejón-Loeches Km 3.1 - 28890 Loeches, Madrid (Spain)
T: + 34 926 588 910 | info@molecor.com | www.molecor.com

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