

The Strongest,
Toughest,
Most Flexible
Pipe.



BIONAX®



MUNICIPAL SYSTEMS

**INTRODUCING LARGE DIAMETER BIONAX®
FOR WATER TRANSMISSION**

- New 14", 16" & 18" (350, 400 & 450 mm) – standard CIOD sizes with the added benefit of larger internal diameters
- 165 psi pressure rating also available for 14", 16" and 18" diameters
- 235 psi pressure rating for all diameters from 4" to 18"



We build tough products for tough environments®

BIONAX®

NEW BIONAX® 14", 16" & 18" PVCO PRESSURE PIPE

NOW YOU CAN USE THE STRONGEST, TOUGHEST, MOST FLEXIBLE UNDERGROUND PRESSURE PIPES IN YOUR WATER TRANSMISSION PROJECTS, TOO.

When IPEX first introduced Bionax PVCO pressure pipe in North America in 2008, it set a new standard for municipal water distribution and made everything else seem antiquated. Since then, thousands of metres of Bionax have been laid in hundreds of installations and it is specified as a material of choice in jurisdictions from coast to coast.

Now, with the introduction of larger diameters, municipal water transmission projects can benefit from the same properties that put Bionax water distribution lines and sewage force mains in a class by themselves.

STRENGTH, TOUGHNESS & FLEXIBILITY

- **2X THE CIRCUMFERENTIAL STRENGTH OF PVC**

Because of its unique biaxial molecular orientation Bionax has almost twice the circumferential tensile strength of conventional PVC (12,100 psi vs. 7,000 psi), permitting larger interior diameters for the same pressure rating.

- **3X THE TOUGHNESS OF PVC**

Bionax provides more than three times the impact strength of standard PVC pipe, so it can survive extreme jobsite conditions, undamaged.

- **NO END-TO-END SPLITS**

If Bionax is ever damaged during or after installation its unique material structure prevents crack propagation. Meaning: it will not split from end to end. Any failure will remain strictly local.



Although this extreme punishment shows how tough Bionax really is, we do not recommend this type of abuse for any real project – please follow our installation procedures.

AVAILABLE IN STANDARD CAST IRON
OUTSIDE DIAMETER (CIOD) SIZES

TRANSMISSION PIPES

Pressure Class/ Rating	14" 350 mm	16" 400 mm	18" 450 mm
235 psi	120001	120002	120004
165 psi	120006	120003	120005

DISTRIBUTION PIPES

Pressure Class/ Rating	4" 100 mm	6" 150 mm	8" 200 mm	10" 250 mm	12" 300 mm
235 psi	118000	118001	118002	118003	118004



BIONAX APPLICATIONS

- Water mains
- Sewage force mains
- Water distribution lines
- Water transmission lines



QUICKER & EASIER FOR DESIGNERS & CREWS

● TIME SAVINGS & FLEXIBILITY FOR MUNICIPAL DESIGNERS

More versatility in terms of troubleshooting and in-field adjustments. Bionax saves municipal designers both time and trouble.

● 40% LIGHTER THAN PVC FOR EASIER, SAFER INSTALLATION

Because Bionax is 40% lighter than conventional PVC, it is significantly easier and safer to handle. Installation requires less equipment and a lot less time. In fact, Bionax is so light several joined lengths can be lifted as a single unit and installed in a trench, saving even more time.

● TIME AND ENERGY SAVINGS

Because Bionax is so much lighter than other materials, it speeds installation and even saves on energy costs.

● SIMPLER JOINING

Bionax uses easy-to-assemble gasketed joints, so no special training is required to join lengths together. The procedure is identical to that of standard PVC pipe.





MINIMUM MAINTENANCE, MAXIMUM LONGEVITY

○ **LOW MAINTENANCE & PUMPING COSTS**

Bionax's larger interior diameters compared to other plastic pipes and smooth inner surface mean less friction, increased flow rates and lower pumping costs. In fact, Bionax retains its excellent hydraulic properties, keeping maintenance costs extremely low and saving energy throughout the system's life.

○ **UNSURPASSED CORROSION RESISTANCE**

Third party studies from respected institutes confirm that Bionax is exceptionally corrosion resistant, unlike cast iron or concrete pressure pipes with pre-stressed steel wires that can degrade over time, leading to costly system failures. Like conventional PVC, Bionax is virtually corrosion-proof.

○ **LOWEST CARBON FOOTPRINT**

Bionax PVC0 has the lowest carbon footprint of any municipal piping system, from the amount of energy used in its manufacture to its delivery to your jobsite.



MANUFACTURING EXCELLENCE

○ **CONSISTENCY & QUALITY SECOND TO NONE**

Bionax's advanced manufacturing process ensures that the initial stock pipe must be flawless to survive the orientation process. In essence, the process itself provides its own quality control.

○ **TIGHTER TOLERANCES THAN CONVENTIONAL PIPES**

The manufacture of Bionax's patented gasket system is both ID and OD controlled, so tolerances are much tighter than with conventional pipes. Joints are always bottle-tight.

○ **CERTIFIED THIRD PARTY PRETESTING OF EVERY PIPE**

Every length of Bionax shipped to your site has been hydro tested to stringent AWWA standards. Only IPEX is third party certified (by NSF) to AWWA C909, your assurance that Bionax will perform as well in field as it does in our labs. Bionax is also third party certified to CSA B137.3.1 standards, so it is truly certified tough.



THE IPEX ADVANTAGE: INTEGRATED TOTAL PVC SOLUTIONS

○ **SEAMLESS END-TO-END SOLUTIONS**

Whether your project is a new installation or a partial or complete replacement of existing piping, you can count on IPEX to provide you with an end-to-end solution that meets your specifications, integrates seamlessly, and is fully compatible with regular C900 and C907 fittings.

○ **PEACE OF MIND**

When you deal with IPEX, you get everything you need to get the job done right: pipe, fittings, and engineering expertise. And because your system is supplied by a single trusted source, you know we will stand behind you and your Bionax system every step of the way, now and for decades to come.



BIONAX: THE GREEN SOLUTION

Bionax has the lowest embodied energy per metre than any other piping material:

- Less energy required in the manufacturing process
- Reduced pumping required for the same pressure rating due to larger inside diameters
- Glass like interior surface preserves excellent hydraulics over the life of the system
- Light weight requires less energy in shipping to jobsite
- Light weight and ease of use minimizes energy required in installation
- Exceptional system longevity



BIONAX[®]

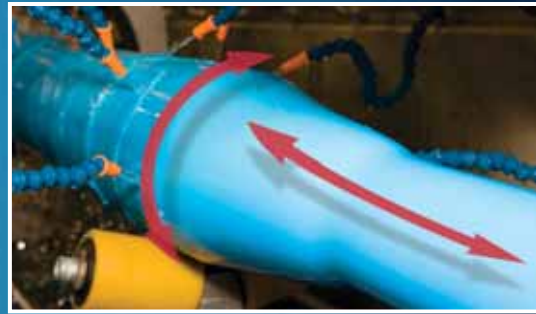
MOLECULARLY ENHANCED PVC PIPE

While biaxial orientation isn't a new process, it's been difficult to produce efficiently and reliably in high volumes. Thanks to a breakthrough in innovative manufacturing, IPEX now uses the most advanced process in the plastics industry to biaxially orient PVC molecules and produce the lightest, strongest pipe available.

In the past, oriented PVC was expanded in a mould, resulting in orientation in only one direction. Now biaxial orientation is achieved by stretching pipe over a mandrel at tightly controlled temperatures and stress levels. The result is a pipe with dramatically enhanced properties both in the circumferential direction (increased hoop stress capability) and in the longitudinal direction (greater impact strength, increased resistant to point loading, and tighter bending radius). More importantly, Bionax's manufacturing process consistently maintains

these qualities with a continuous process, rather than using older batch-processing technology.

While these cutting-edge manufacturing techniques are expensive, they result in the strongest, toughest and most consistent high-quality pipe available in the market today.

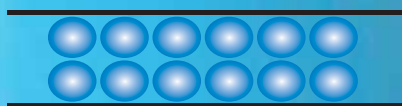


Stretching regular PVC pipe biaxially in both the hoop and axial directions — lengthways and sideways — over a mandrel after the pipe is extruded dramatically improves the performance of PVC material.

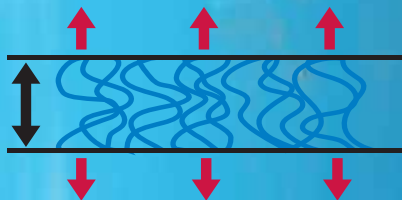
CONVENTIONAL PVC



Conventional PVC is manufactured in a single layer.

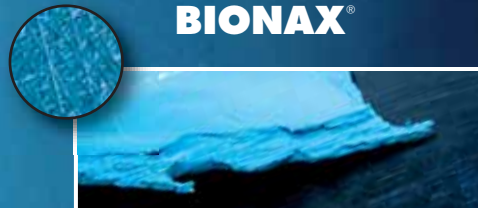


When PVC pipe is extruded in the traditional way, a more or less spherical molecular structure results, requiring thicker walls to provide the necessary strength.

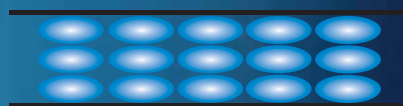


Because they're unaligned, the molecules within regular PVC react to force in a general, haphazard direction.

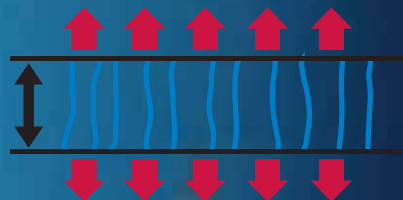
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Due to biaxial molecular orientation during the manufacturing process, thin stratified layers are formed within the PVC, resulting in higher impact strength even under extreme pressure.



As the PVC is stretched, so are the spherical molecules, allowing more of these elongated molecules to fit into a single layer than regular PVC. This gives the material a higher molecular density and makes it tougher.



Biaxial stretching creates a molecular orientation in which the molecules can be aligned in the direction of the expected load, resulting in superior force resistance.

CANADA IPEX INC. NSF (R) PU-G AST
/300mm CI100 PVC0 1135

SALES AND CUSTOMER SERVICE

Canadian Customers call IPEX Inc.
Toll free: (866) 473-9462 (IPEX INC)
www.ipexinc.com

About the IPEX Group of Companies

As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the world's largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have established a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX group products are:

- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- PE Electrofusion systems for gas and water
- Industrial process piping systems
- Electrical systems
- Telecommunications and utility piping systems
- Irrigation systems
- Industrial, plumbing and electrical cements
- PVC, CPVC, PP, ABS, PEX, FR-PVDF and PE pipe and fittings (1/4" to 48")

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