aquatechnik®

Solutions for plumbing and plant-engineering

WOR

WHITE OXIDATION RESISTANCE

- HIGHER RESISTANCE TO OXIDATION
- INCREASED RESISTANCE TO PRESSURE AND TEMPERATURE
- SUITABLE FOR DRINKING WATER CONVEYANCE
- REDUCED PERMEABILITY TO OXYGEN

PIPES AND FITTINGS IN PP-RCT WOR

Higher performaces with reduced permeability to oxygen

Faser Fiber-T, Fiber-COND, Fiber-LIGHT and UVRES pipes are produced by using WOR technology (White Oxidation Resistance). This solution, developed in Aquatechnik Research Division, in collaboration with world leaders in the production of additives for polymeric systems, consists of a particular package of additives and polymeric material that form the inner layer of the pipe made of PP-RCT.

Aquatechnik Group Spa, based on the experience gained in the North American market, where water disinfection treatments are particularly aggressive, has decided to extend the use of the specific white masterbatch also for all other fiber-reinforced pipes in order to increase the performance of the pipes in resistance against the thermo-oxidative attack. Besides, laboratory tests show that using the PP-RCT WOR technology significantly increases the oxygen-impermeability of the pipes compared to a traditional one, with high advantages of life cycle duration, mechanical resistance and workability.

Today, the binomial PP-RCT/WOR represents therefore the most technologically advanced element for the production of a pipe that can guarantee greater safety and reliability for systems destined to the transport of water in sanitary, heating and mechanical systems.

Advantages in life duration and warranty

Higher resistance against oxidising agents

Laboratory tests show how WOR technology increases resistance to oxidising substances such as free chlorine, chloramines, chlorine dioxide etc. used in sanitation water up to 40 times compared to a normal PP-R material.

Legend

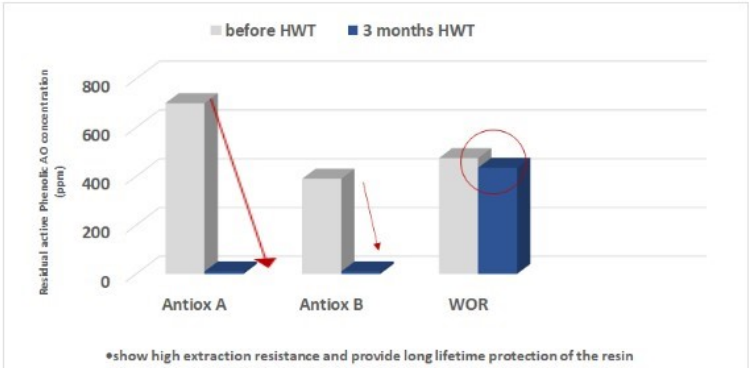
2019= faser Fiber-T pipe SDR 7,4, PP-RCT WOR Ø 25 mm
2018= faser Fiber-T pipe SDR 7,4, PP-RCT Ø 25 mm
2017= fusio-technik pipe SDR 6, PP-R Ø 25 mm

Compatibility with drinking fluids

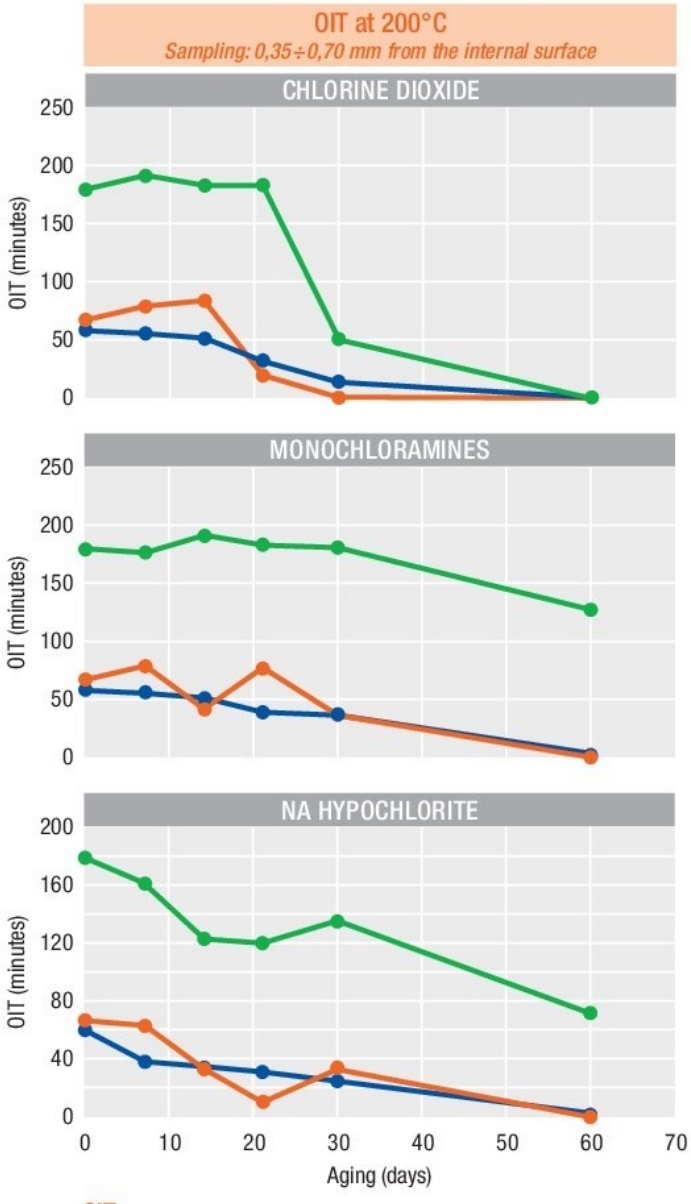
The WOR technology allows to transport hot and cold drinking water and other fluids for human consumption in compliance with the current Standards such as the European Regulation 10/2011 and Italian Ministerial Decree no. 174/2004 and NSF 61/NSF 51.

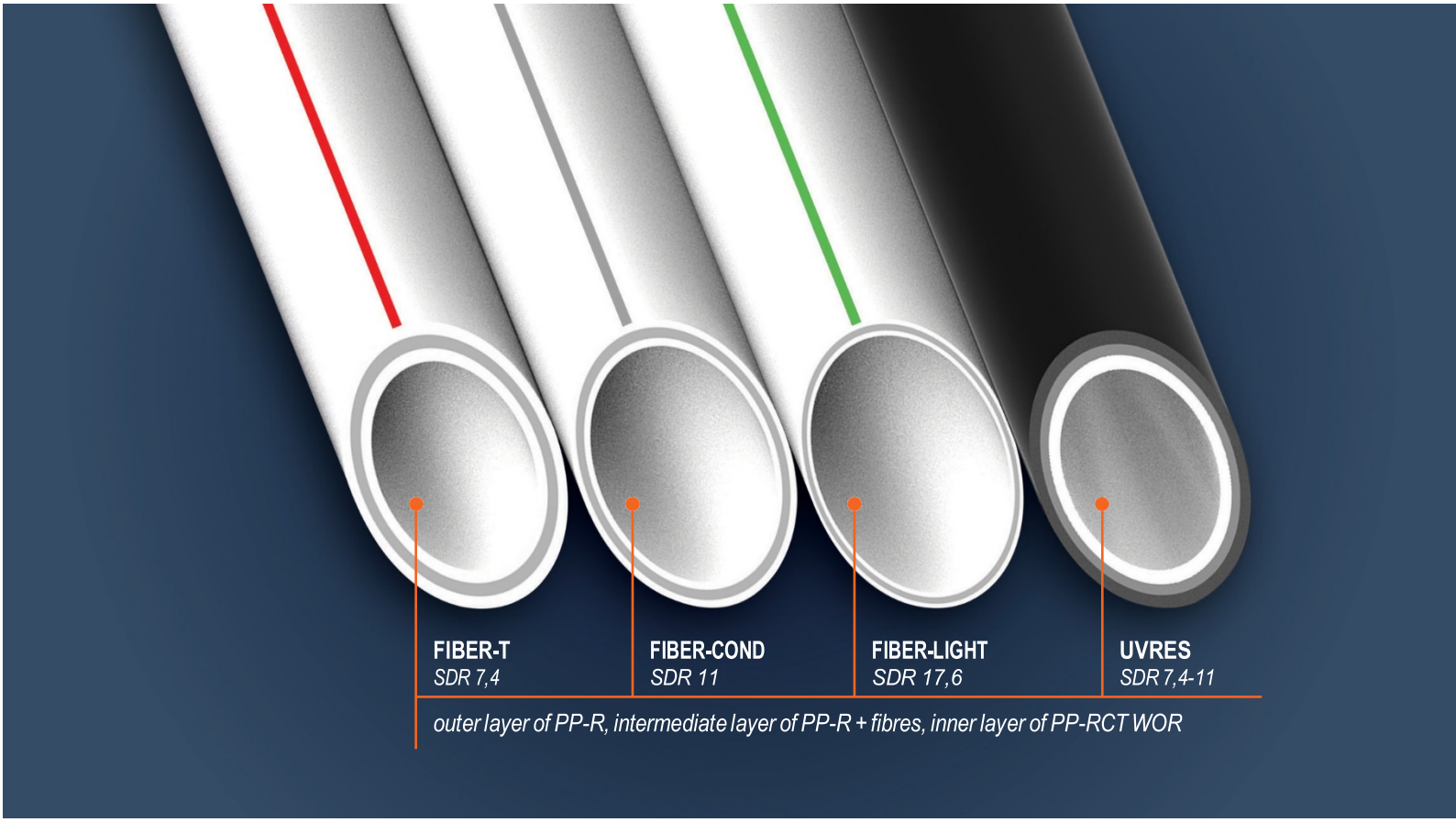
Increased resistance to temperatures and pressures

The combination of PP-RCT + WOR guarantees an increase in performance from 20% (using cold water) to 50% (using hot water) compared to a single-layer pipe of the same thickness.



•show high extraction resistance and provide long lifetime protection of the resin





Advantages of the new generation of WOR pipes impermeable to oxygen

Barrier to oxygen

Laboratory tests show that WOR, in combination with PP-RCT, thanks to the high crystallinity of the polymer and the presence of special additives, reduces up to 4 times the permeability to oxygen compared to a normal PP-R or PP-RCT pipe.

Impermeability to oxygen stability over time

The application of external films in EVOH exposes the material to degradative actions due to temperature and humidity as well as to the fracture or removal of the film itself from mechanical stresses. This encourages the decay of the barrier capacity of the film. The WOR technology is applied to the inner layer of the tube maintaining its effectiveness over time without being affected by external agents.

	faser pipe old generation (inner layer of PP-RCT)	faser pipe new generation (inner layer of PP-RCT WOR)
O_2TR *(cc/pkg x 24h x air)*	0,054	0,014

Data according ASTM 1307-14 O_2TR *Oxygen transmission index*

Fittings with barrier to oxygen

The WOR technology is applied to all fittings, insuring to the entire system, (pipe and fittings), reduced permeability to oxygen compared to the standard systems using EVOH that have no barrier on the fittings.

Reduction of installation times

The WOR technology, unlike traditional EVOH barrier systems, does not require the removal of the outer film before polyfusion process, making this operation faster and safer at the same time.

Advantages of the new generation of UVRES pipes in installations directly exposed to UV rays

Great resistance and duration over time

A new stabilizer, directly extruded into the outer layer of the pipe, ensures a significant decrease of the degradation due to atmospheric agents.

Pipe of the UVRES range, tested by an accelerated aging test named "weather- o-meter", show an increased resistance to UV rays more than 30 times that of non-treated polypropylene pipe without the additive (test duration 15000 hours by UV radiation of around 1200 KLy).

Compatibility with drinking fluids

The WOR technology allows to transport hot or cold drinking water and other fluids for human consumption in compliance with the current standards such as NSF-61, NSF-51, European Regulation 10/2011 and the Italian Ministerial Decree no. 174/2004.

Reduction of installation times

The UVRES technology, unlike traditional barrier systems, does not require the removal of the outer film before the polyfusion process, making this operation faster and safer at the same time. Additionally, the UVRES pipe can be directly welded to the non-UVRES Aquatechnik pipe with no special preparation.

The Fusio-technik systems by Aquatechnik meet the highest quality Standards as shown by the different certifications issued by the most important national and international Institutes.

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VERS. 00 - 04.2020

Wide range of high quality multilayer pipes and PE-X and PE-RT pipes with antioxygen barrier

Patented system of synthetic material fittings

Patented system of brass alloy fittings

Patented system of brass alloy fittings for gas transport with multilayer pipes

Multi-jaw press-fitting system with synthetic material full-made fittings

Multi-jaw press-fitting system with brass alloy full-made fittings

Pipes and fittings in PP-R for polyfusion welding

PUR preinsulated pipes and fittings in PP-R for polyfusion welding

Complete radiant panel system

Aquatechnik North America Ltd
Unit A, 2125 South Service Road W
Oakville, ONTARIO, L6l 5w2
CANADA
Tel.(905)602-5360
Fax (905)602-7422

info@aquatechnikna.com
www.aquatechnikna.com

Aquatechnik North America can bring, without warning, changes or substitution about its products and its technical documentation to which the users are invited to up-date periodically consulting the documentation on the web-site.