



arcoPure®


The Future of sustainable translucent building

Polycarbonate multiwall panels
for purified environments...
a new step towards a cleaner world.



dott.gallina

POLYCARBONATE SYSTEMS & SHEETS



**arcoPure[®],
the innovative
polycarbonate modular
system get closer to
environmental care.**

What is arcoPure[®]

arcoPure[®] is an added value for the community and for business ethics, as the Pureti[®] coating represents a further investment made by dott.gallina to design environmentally friendly building solutions and to change the public's perception of plastic products. They can be managed correctly so as not to harm the environment.



**+ lower pollution
healthier environments**

The unique translucent surface that removes atmospheric pollutants to improves air quality and let breathe a cleaner air in our cities, thanks to photocatalysis.

arcoPure[®] is the result of the collaboration between dott.gallina knowledge in polycarbonate extrusion and Pureti NanoAir Solutions innovations in fourth-generation nanotechnologies. Thanks to this technical partnership, the Pureti[®] patented photocatalytic coating is directly applied on the external side of arcoPlus[®] PC panels during the production process, allowing to get anti pollution, self-cleaning, odor control, anti-mould, and air-purification surfaces. This brand new solutions is exclusive for the European construction market, with the aim to offer designers a new generation of building materials for developing architectural projects with low environmental impact... from now on plastic gets to behave like a natural phenomena!



arcoPure[®] panels are 100% made in PC using both virgin granules and scraps coming from internal recycling with **zero-wasting circular production**, adding a small quantity of Pureti **not-toxic additive for man nor for nature**. So arcoPure[®] panelings are produced respecting the environment and at the end of use-life they are **100% recyclable** to be transformed into new objects to get a second life.

**Installing arcoPure[®] translucent
facades, you make environment
cleaner and less polluted...
arcoPure[®] reduces carbon footprint.**



- flat roofings
- curved roofings
- indoor ceilings



- curtain walls
- cladding facades
- translucent facades
- indoor partitions
- building envelopes

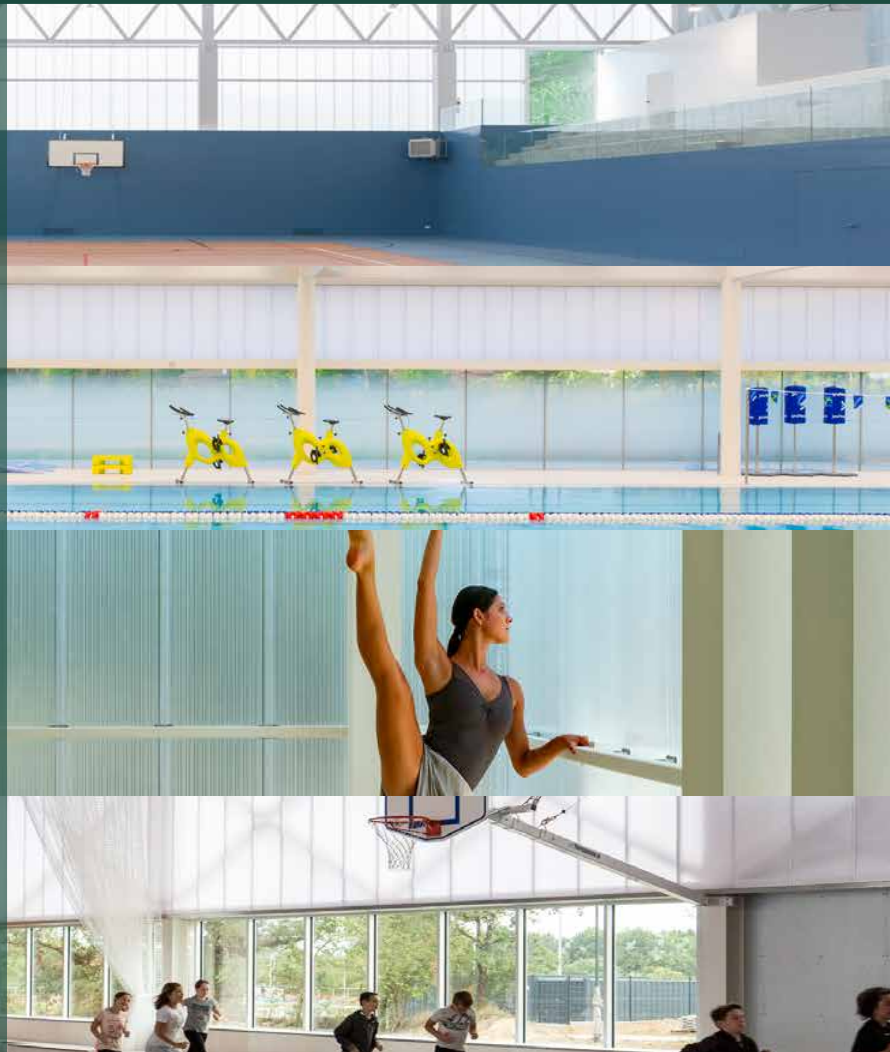
indoor



Applications

arcoPure® polycarbonate surface is an innovative solution highly versatile to create both small indoor living spaces and wide exterior facades... without size or length limits, as for all products in the arcoPlus® range. It represents a significant stride towards architecture design more and more truly sustainable.

outdoor

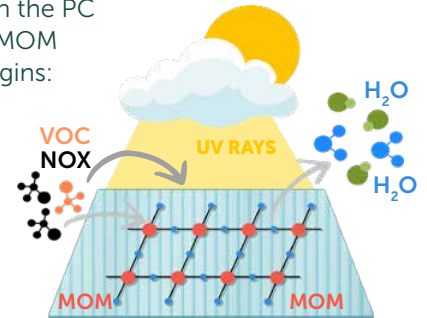


arcoPure®

Photocatalysis, the benefits

Thanks to UV rays light
arcoPure® goes into action reducing atmospheric pollution

Photocatalysis process is activated by light energy, so when UV rays come into contact with the PC surface treated with Pureti® containing MOM nanoparticles, the chemical process begins: O_2 radicals and oxidizing radicals (which are the most powerful non-toxic degradative agents in nature) are released by PC to attack and break down the volatile organic dirt molecules of VOC, SOX, NOX present nearby to the PC surfaces... creating oxidation process that spreads water vapor with harmless minerals.



anti pollution
(VOX, NOX, COV)



self-cleaning



odor control



air purification



anti-viral
anti-bacterial

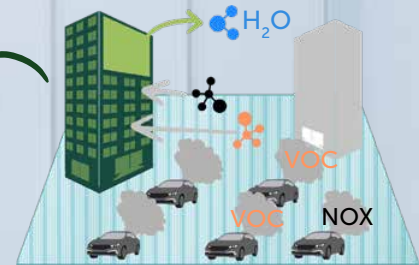


How much air pollution can
be reduced by arcoPure®?

1 sqm
arcoPure® = 1 tree*

10 sqm
arcoPure® = 1 city-car*
annually emission
travelling 16.000km

**-68%
POLLUTION**
arcoPure® building facades
eliminate VOC NOX COV
polluting particles generated
by traffic or industry, releasing
clean air into the environment



arcoPure®

convertes 68% of volatile particles into clean air

Thanks to several certified analysis, including the Fraunhofer German IST (Test on determination of the photocatalytic air-cleaning performance of polycarbonate samples treated with Pureti Coat according to EN 16980-1), we can say that 68.5% is the conversion rate arcoPure® surface with Pureti® coating to convert of VOX NOX nearby PC surface into H₂O vapor. In accordance with the United States Environmental Protection Agency (EPA) documents, we have calculated the carbon footprint equivalence regarding car emissions and trees absorption. Therefore each sqm of arcoPure® destroys 68,5% of the pollution around the treated surface and reduces pollution more than a tree!

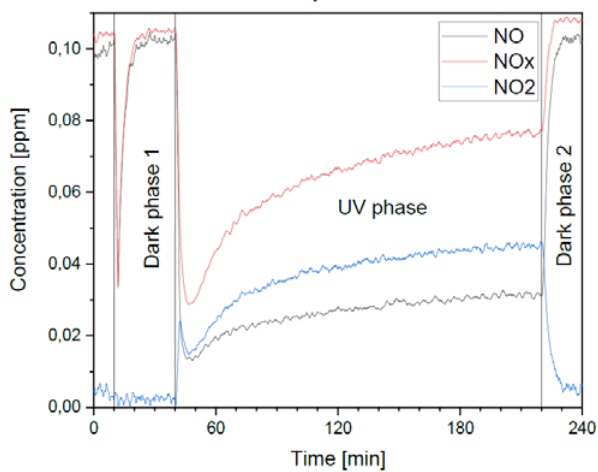
Let's give more breath to translucent cities thanks to sunlight...

arcoPure®

all the benefits of sunlight

The traditional feature of arcoPlus® multiwalls PC panels is to maximize the benefits of sunlight in daily life, in fact the **transparency** joined with **lightness** allows natural light to pass through lighting indoor living or working areas giving **visual comfort**. At the same time the air chamber structure guarantees **thermal insulation**, **reducing artificial energy** needs and related energy costs... since today it will also be possible to **reduce pollution** and make the air cleaner thanks to the photocatalysis process activated by solar energy.

CSTR - Pureti - Polycarbonate G1 - 09.2023



www.gallina.it/documents/arcoPure_TestFraunhofer.pdf

Fraunhofer

Sample No.	NO inlet concentration [ppmv]	NO abatement rate [$\mu\text{g}/(\text{m}^2 \cdot \text{h})$]	NO ₂ production rate [$\mu\text{g}/(\text{m}^2 \cdot \text{h})$]	NO _x abatement rate [$\mu\text{g}/(\text{m}^2 \cdot \text{h})$]	Overall conversion of NO [%]	NO photo-catalytic abatement rate [m/h]
	C_{IN}^{NO}	$r_{NO,I}^{photo}$	$r_{NO_2,I}^{photo}$	$r_{NO_x,I}^{photo}$	η_{total}^{NO}	$k_R = \frac{r_{NO}^{photo}}{C_{IN}^{NO}}$
1	0,099	2488,12	2262,49	1544,34	68,51	19,83

The Pureti coating is completely transparent and the aesthetic, optical and mechanical properties of the arcoPlus® PC panels are not altered in the slightest compared to those reported on the technical data sheets.

Awards

- Pureti® is the only photocatalytic partner in the iSCAPE Project for the smart control of pollution; recognized by Horizon 2020 as "one of the 10 breakthroughs to shape Europe for the next 60 years". Positive real-world test were carried out with UNIBO in Bologna, Italy.
- Pureti® is NASA a "Dual Use Technology Partner", as NASA chose it after an exhaustive review of all known competitors.
- Pureti® was attributed the "Solar Impulse Efficient Solution" Label following an assessment performed by external independent experts and based on verified standards. It is thereby joining the #1000solutions challenge.





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