



ADFORS Novelio® wallcoverings

Credentials for LEED v4





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The building trade is one of our economy's key sectors and all the stakeholders involved have strongly acted to improve the performance of new and renovated buildings whilst also minimizing their environmental footprint.

Innovative capabilities make ADFORS the reference for Sustainable Habitat, based on three levels of excellence:

1. **Performance of the product and durability of the building.**
2. **Comfort for the occupants through design, easy application and indoor air quality.**
3. **Environmentally friendly by considering life cycle assessment of our products and also minimizing our environmental impact**

In this context, Adfors supports the development of environmental certification for buildings, as LEED.

Three of the eight categories of LEED v4 may be boosted by using Adfors wallcovering solutions in the building design. This brochure describes our contribution and covers the following ranges from ADFORS Novelio® product line:

- **Novelio® Classic**
paintable glass fiber wallcoverings available with different finishing (pre-painted, preglued, self-adhesive)
- **Novelio® Renovation**
paintable glass fiber wallcoverings specifically designed for heavy renovation jobs
- **Novelio® Decoration**
paintable decorative glass fiber wallcoverings with sand coating for a two-tone effect
- **Novelio® Nature**
pre-decorated glass fiber wallcoverings



MATERIAL & RESOURCES / Building life-cycle impact reduction

Possible points: 5

Saint-Gobain has implemented a stringent program to improve the environmental footprint of its products at every stage in their life cycle from the very beginning thanks to eco-innovation. This is a key aspect towards reaching the 10% reduction required to obtain this credit.

Furthermore, the product's LCA results (contained in the Environmental Product Declaration - EPD) are necessary to evaluate the whole building's environmental footprint. ADFORS Novelio® EPD is available on request.

Besides ADFORS Novelio® wallcoverings help to increase life span of buildings by reinforcing walls while reducing maintenance cycles and therefore costs.



MATERIAL & RESOURCES / Building product disclosure and optimization - environmental product declarations

Possible points: 2



Sharing the ambitions of the Saint-Gobain Group regarding Sustainability topics, Saint-Gobain Adfors performed Life Cycle Analysis (LCA) for ADFORS Novelio® product range. The results of this LCA are presented under an Environmental Product Declaration compliant with NF P 01-010 standard.

Results of the LCA are verified by a third party to be fully transparent and ensure the quality and the accuracy of the data. A new EPD, compliant to EN 15804 standard with updated data will be published in 2018.

EPD for wallcoverings is available on request.



MATERIAL & RESOURCES / Building product disclosure and optimization - sourcing of raw Materials

Possible points: 2

Option 1. raw material source and extraction reporting

Every year, Saint-Gobain publishes its Corporate Social Responsibility report, which is based on the GRI (Global Reporting Initiative) framework. In this report, Saint-Gobain details its environmental policy, including supply chain subjects.

Option 2. leadership extraction practices

As for the recycled content, according to the LEED definition, up to 11% of pre-consumer content and 0% of post-consumer content (as the product is glued to the wall) are incorporated during the production of glass yarns.

Packaging (cardboard, pallets) used for ADFORS Novelio® products are FSC (Forest Stewardship Council) certified.



MATERIAL & RESOURCES / Building product disclosure and optimization - material ingredients

Possible points: 2

Saint-Gobain ADFORS certifies on the basis of knowledge and information given by our suppliers that glass fiber wallcovering products do not contain, in concentration above 0.1% in weight, any substances on the SVHC list (substances of very high concern) published by the ECHA on October 28th, 2008 updated on July 07, 2017.

Furthermore ADFORS Novelio® products are Oekotex certified, emphasizing the use of non-hazardous chemicals during production of the products.



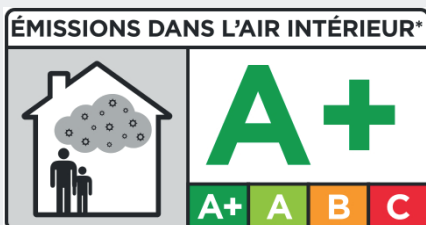
INDOOR ENVIRONMENTAL QUALITY/ Low-emitting materials

Possible points: 3

Product emissions were testing according to ISO 16000 - 3, 6, 9 & 11 in order to fulfil requirements for French regulation. Highest level of performance A+ class (very low emission of harmful components) was achieved.

	Concentration after 28 days*	Limits for A+
	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$
TVOC	18	< 1000
Formaldehyde	3,3	< 10
Acetaldehyde	< 3	< 200
Toluene	< 2	< 300
Tetrachloroethylene	< 2	< 250
Ethylbenzene	< 2	< 750
Xylene	< 2	< 200
Styrene	< 2	< 250
2-Butoxyethanol	< 2	< 1000
1,2,4-Trimethylbenzene	< 2	< 1000
1,4-Dichlorobenzene	< 2	< 60

*Values for ADFORS Novelio® Nature



Glass fiber wallcoverings were also tested according to CA 1350 (CDPH/EHLB/Standard method v1.2) and fulfil requirements for **Classroom and Offices**.

Parameter	Test after 14 days		
	CAS N° Single compounds	Concentration in Classroom µg/m3	1/2 CREL µg/m3
TVOC (C5-C17)	-	16	-
Single compounds (with CREL value) None determined	-	-	-
Formaldehyde	50-00-0	3,2	≤ 9
Acetaldehyde	75-07-0	< 2	≤ 70

Some products of ADFORS Novelio® range also include CleanAir technology (patented) which absorbs formaldehyde from indoor air. Effect is immediate and lasts for more than 10 years. Product ranges including this feature are :

- **ADFORS Novelio® Classic (partly)**
- **ADFORS Novelio® Decoration (partly)**
- **ADFORS Novelio® Nature**



INDOOR ENVIRONMENTAL QUALITY/ Thermal comfort

Possible points: 1

Laminated products from the ADFORS Novelio® Renovation range (Acoustiver, Renocover) positively contribute to improve thermal comfort by limiting effect of cold wall and preventing condensation in poorly ventilated spaces. Thanks to a sub-layer made of fleece specially designed to improve thermal comfort, it allows a reduction in discomfort period by up to 1h30 (depending on wall structure).



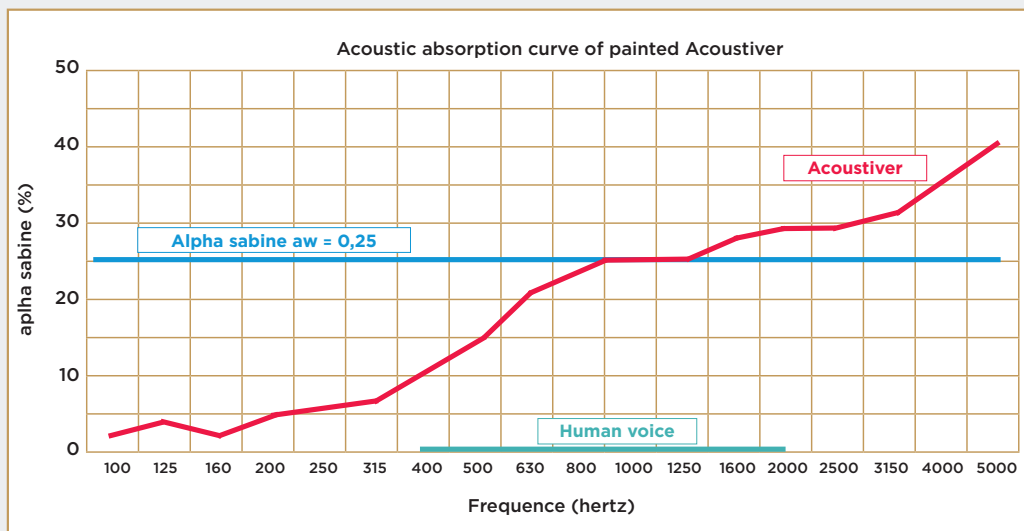
INDOOR ENVIRONMENTAL QUALITY/ Acoustic performance

Possible points: 1

Products from Acoustiver sub-range (ADFORS Novelio® Renovation) are designed to improve thermal and acoustic comfort while also helping in heavy renovation jobs.

More specifically this range helps to reduce echo phenomena and absorbs up to 40% of noise pollution according to ISO 11654 norm.

Based on ISO 354 norm acoustic absorption coefficient α_w is 0.25.



INNOVATION

Possible points: 5

Saint-Gobain ADFORS develops and markets new and innovative products for the habitat, taking into account sustainability topics, right from development stage through to product launch thanks to our Eco-Innovation policy.

Coating including technology CleanAir

Improving air quality is a priority for those with particular sensitivities. Targeting formaldehyde is strategic as this chemical is recognized as a harmful Volatile Organic Compound (VOC):

- At low exposure, it can cause headaches, irritation, asthma, nausea & discomfort.
- At high exposure, formaldehyde is carcinogenic (class 1 according to International Research Center on Cancer).



When CleanAir technology is included in the wallcovering up to 70% of the formaldehyde in the indoor air is captured immediately and neutralized. This performance is maintained even after several layers of paint (if the product is a paintable one). Efficiency of the product has been proven for more than 10 years.

Technology Mold-X

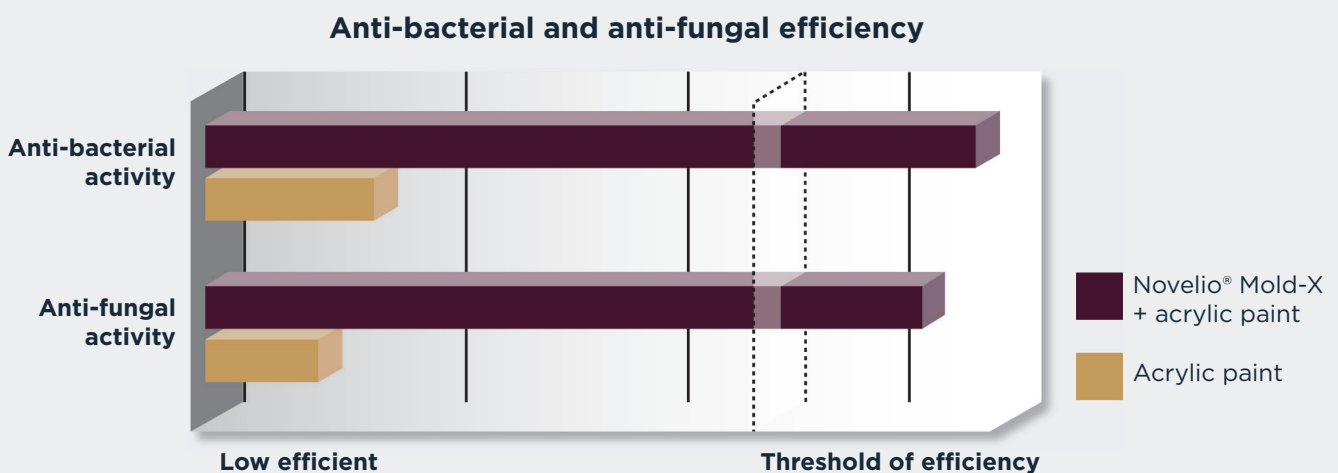
Keeping a good sanitary environment is a priority for public buildings and high risk rooms.

Mold and bacteria quickly develop under the influence of heat and of humidity. They are mainly found in kitchens, bathrooms and wet rooms in private and public buildings.

Mold and bacteria presence can cause irritation, asthma and several infectious diseases. These symptoms are increased for those with particular sensitivities (babies, children, the old or the sick).

In low ventilated areas, they can destroy materials and cause the need for disinfection in hospitals.

Wallcoverings including Mold-X treatment avoid the development of mould and bacteria on the surface even after painting. Anti-bacterial activity was tested according to JIS Z 2801 and measured at $R > 2$ (more than 99% of bacteria killed). Anti-fungal activity was measured and confirmed according to ISO 846:1997.



LEED® does not certify a specific product, but the building as a whole. The use of Novelio by Adfors can contribute to your future LEED project on 8 criteria and be worth up to 21 points.

Saint-Gobain, a key partner for sustainable construction



WORLD GREEN BUILDING COUNCIL

For many years now, Saint-Gobain has been involved in local efforts to promote sustainable buildings by joining Green Building Councils (GBCs). Today we are actively involved, both locally and globally:

- **Member of the Corporate Advisory Board of the World GBC,**
- **Partner of the European Regional Network,**
- **Platinum member of the US GBC,**
- **Member of more than 40 national GBCs worldwide.**



Disclaimer

This brochure only provides an indication on the possible credits which Adfors could yield in relation to a LEED rating system. It is intended as a guide in the choice of appropriate wallcovering in relation to the LEED credit rating system and has no binding value. The LEED credit rating of a project is influenced by a variety of factors, such as the type of building, configuration of all the other elements of the building in addition to the wallcovering, etc... The final rating is subject to the performance of a LEED assessment as per the LEED methods and procedures available on their site. It is the user's responsibility to choose the appropriate building environmental assessments methods destined to ensure that the building meets regulatory requirements at national, local or regional level.



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