

What is the smell of “new”?

Franco Bulian

The growing awareness of the importance of leading a healthy lifestyle leads increasingly us to pay a high attention to the quality of what we introduce in our body especially considering food. Examples are certainly not necessary to highlight how these concepts are well-established in our everyday life and how they are influencing our choices and the strategies of manufacturing companies also in their marketing communications. If the attention towards food is undoubtedly very high, there is, however, less awareness of the importance of the quality of air. But if we do some simple calculations, we can easily notice that every day we introduce in our bodies about twelve thousand litres of air, that in one year equals to more than four million litres being, roughly speaking, the volume of two Olympic swimming pools .

We know that air is primarily made up of nitrogen, oxygen and other gases (carbon dioxide, argon, etc.) but there are also substances deriving from different sources and that can greatly affect its quality.



A particularly important aspect in this regard relates to the evidence that most of our daily lives, more than 90% according to some studies, is spent inside buildings (homes, offices, schools, hospitals, etc.). Therefore special attention should be paid to indoor air quality considering that the same is influenced both by the materials that surround us and by our daily activities like cooking, cleaning, personal hygiene, etc.

On these issues ISPRA (the Italian Institute for the Protection and Environmental Research), has recently organized a work-shops involving important Italian institutions such as ENEA, the National Institute of Health, the Ministry of Environment, the University Cattolica del Sacro Cuore and the University La Sapienza.

There is indeed a growing attention towards indoor air quality by the bodies involved, at various levels, on public health. Many studies now clearly show that various diseases are caused, or are otherwise related to, “polluting” substances that we constantly breathe inside our homes or inside all the indoor environments where we spend our daily life.

This problem is also related to the continuous improvement of insulation of buildings that, if on one hand increases their energy efficiency, on the other significantly reduces the air exchanges with the external environment.

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The Rome meeting is thus served to review progress on these issues and to try to aggregate the various existing skills in order to start considering the so-called indoor pollution in a complementary way and from all points of view, toxicological, medical, analytical and normative. The desire to create a culture on “healthy-breathing” is also shown by the involvement in the work-shop of some realities playing a fundamental role in these areas, such as the chemical industry and the representatives of the building sector.



CATAS was present at this working table by virtue of the considerable experience gained and widely recognized in the chemical analysis of VOC emissions from materials.

Besides the long experience of the Institute in the specific field of formaldehyde emission from wood base panels (more than thirty years), CATAS is definitely the Italian laboratory that performs the highest number of VOC emission tests with a significant database of over a thousand analyzed materials.

It was precisely the “numbers” presented by CATAS which allowed participants to the workshops to understand which substances can be emitted by the various materials used in construction and in the furniture sector. It was then possible to start to concretely consider their effects, the possible limitations and the possibility to take action to reduce them upstream.

The experience of CATAS was also useful to focus on some sensitive aspects of this issue, which must be properly considered and carefully dealt by the competent authorities:

- Wood and its derivatives naturally emit certain organic substances that, if indiscriminately limited, may exclude or reduce the future use of such materials. This scenario may seem paradoxical considering how wood has always accompanied the human life and being, in other terms, recently rediscovered as a modern material given its intrinsic environmental sustainability;
- Products with low content of volatile organic substances, especially in the case of paints and adhesives, are certainly more environmentally friendly, but their contribution to indoor pollution must be specifically evaluated depending on the type of substances present and their “volatility” (the speed at which they evaporate). The equation “low-solvent = low indoor emissions” is therefore not always true;
- The products made with “natural” raw materials may be suggestive in terms of safety for the environment and for human beings, but also in this case the analytical experiences sometimes testify the opposite, emphasizing once again as the experimental objectification is the only way to follow for a serious and reliable assessment of the safety of any product.

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In the final part of the meeting dedicated to conclusions, a goal widely shared by participants at the Ispra workshops was the willing of creating a culture on these issues so that there will hopefully be in the future a consolidated awareness about the importance of indoor pollution by producers and end consumers.

This grassroots movement would have an undeniable force in driving the market towards the best performing products in terms of emissions. This process, although long and certainly difficult to prosecute, would certainly be more effective than any legislative impositions which, by itself, hardly get the desired results being probably interpreted only as an additional burden in terms of laws and bureaucratic impositions.

An important first step toward clarification on the issue of indoor emissions has therefore been made in Italy thanks to the important work-shop organized by ISPRA in October. The final hope is that this way of working from the authorities who supervises the definition of rules on safety and public health continue with the same spirit of scientific objectivity and collaboration, clearly demonstrated and appreciated on the occasion of this significant event.

The regulations on indoor emissions

The smell of new, often perceive in a new home or in a renovated building is therefore a consequence of the presence in the air we breathe of solvents, monomers, plasticizers and other substances that come from materials and objects that surround us. All these substances, calls volatile organic compounds (VOC), penetrate into the body through breathing and can consequently interact in various ways with our body giving also rise to the development of potential pathologies. The European Union has recently published the EU Regulation n. 305/2011 which includes the emission control in the fundamental requirements for all building materials. For the next years we therefore expect specific European documents to regulate in detail this complex matter. Three Member States, France, Germany and Belgium, have already published specific national regulations on indoor emissions that all producers must therefore know and respect in order to freely export their products in these countries.

Moreover, in recent years, voluntary certification such as Ecolabel and specifications for public and private bodies containing requirements for the emissions of volatile organic substances from raw materials or products finished were developed. The knowledge and the respect of these regulations is often necessary to commercialize its products in certain areas.

In Italy there is a decree of 2008 which limits formaldehyde emission from wood-based panels and derived products by direct reference to the E1 class defined by the European standards