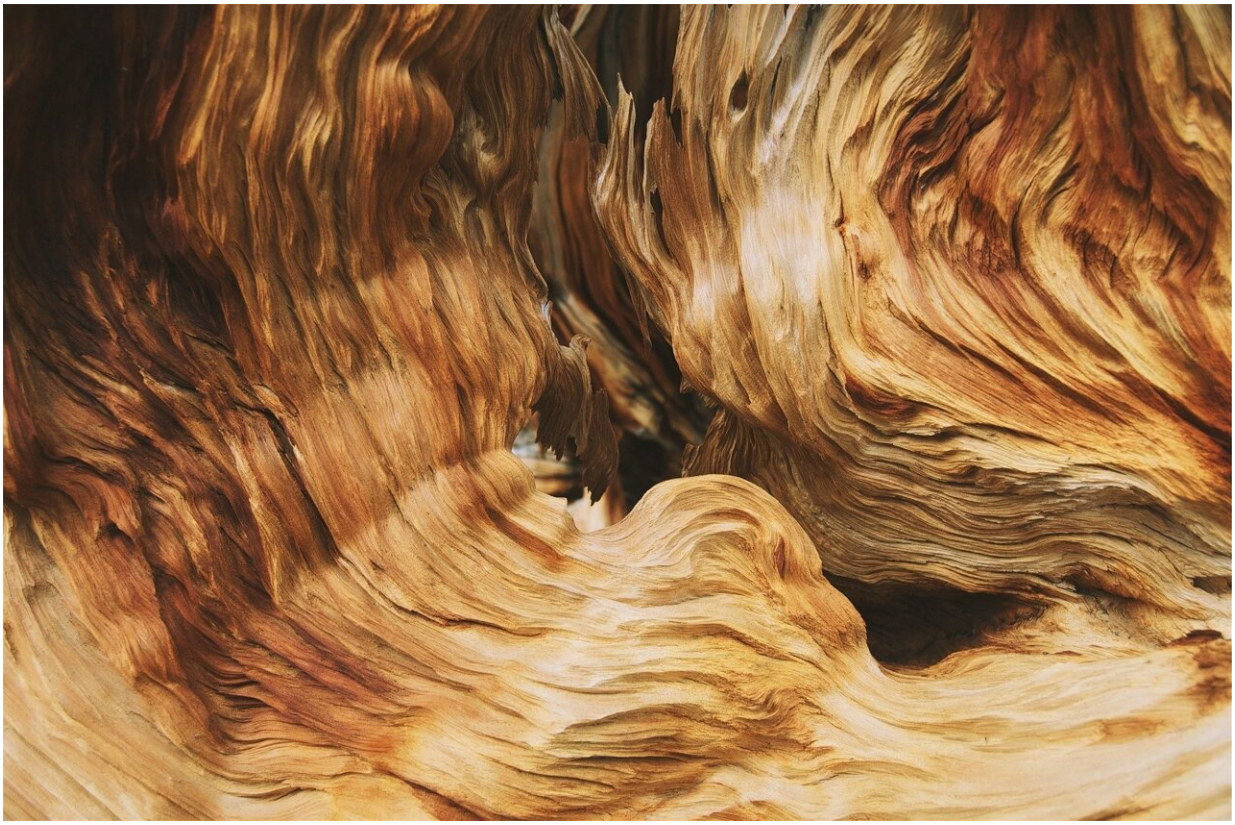
Examining how advanced materials should be safe and sustainable

January 6 2022



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In a joint recommendation, the German higher federal authorities draw a picture of how the development of safe and sustainable advanced materials can be controlled and regulated. The term "advanced

materials" is understood to refer to a broad and heterogeneous group of materials that have been deliberately designed to meet the functional requirements for future-oriented applications. The paper deals with the aspects of risk assessment, sustainability and control with regard to good governance and outlines relevant fields of action.

Technical applications of advanced materials often promise to solve global challenges, for example in the areas of renewable energies, electromobility or in the health sector. However, a look at the technological history of innovative materials reveals the emergence of dangers to humans and the environment that only became known after intensive use. Today's advanced materials are complex and have a wide range of uses. Therefore, it is all the more important to regulate and control the development of novel, safe and sustainable materials at an early stage.

That is why the Federal Institute for Occupational Safety and Health (BAuA), the German Federal Institute for Risk Assessment (BfR) and the German Environment Agency (UBA) have issued a joint paper with recommendations for the responsible use and appropriate governance of advanced materials. This includes, among other things, an early warning system to identify materials that give cause for concern in a timely manner. The authorities also see the need to review and adapt existing laws, regulations and assessment methods. Only in this way can the legal framework keep pace with technical innovation.

This joint perspective is based on current discussions about concepts for safe and sustainable design ("Safe and Sustainable by Design") of chemical substances, materials and products. In doing so, it offers recommendations regarding what needs to be considered in order to apply these concepts to advanced materials. In view of the interdisciplinary nature of the subject and the diversity of the interest groups concerned, the paper emphasizes the importance of establishing

dialog mechanisms. In addition, future research needs are also determined. In particular, preliminary research should be intensified in order to support safe and sustainable early-stage development of material innovations. Research accompanying regulation is also required, examining the need for specific regulatory measures and developing adapted test and assessment methods.

The paper, which summarizes current activities, considerations and recommendations of the BAuA, BfR and UBA, is intended to serve as a basis for discussion at national, European and OECD level. The joint recommendations build on the joint research strategy of the German higher federal authorities on the application safety and environmental compatibility of nano-materials and other innovative materials. They also pick up the discussions that were held in a series of three international thematic conferences organized by the UBA on advanced materials and their challenges.

More information: Paper: www.umweltbundesamt.de/publika … f-advanced-materials

Provided by BfR Federal Institute for Risk Assessment