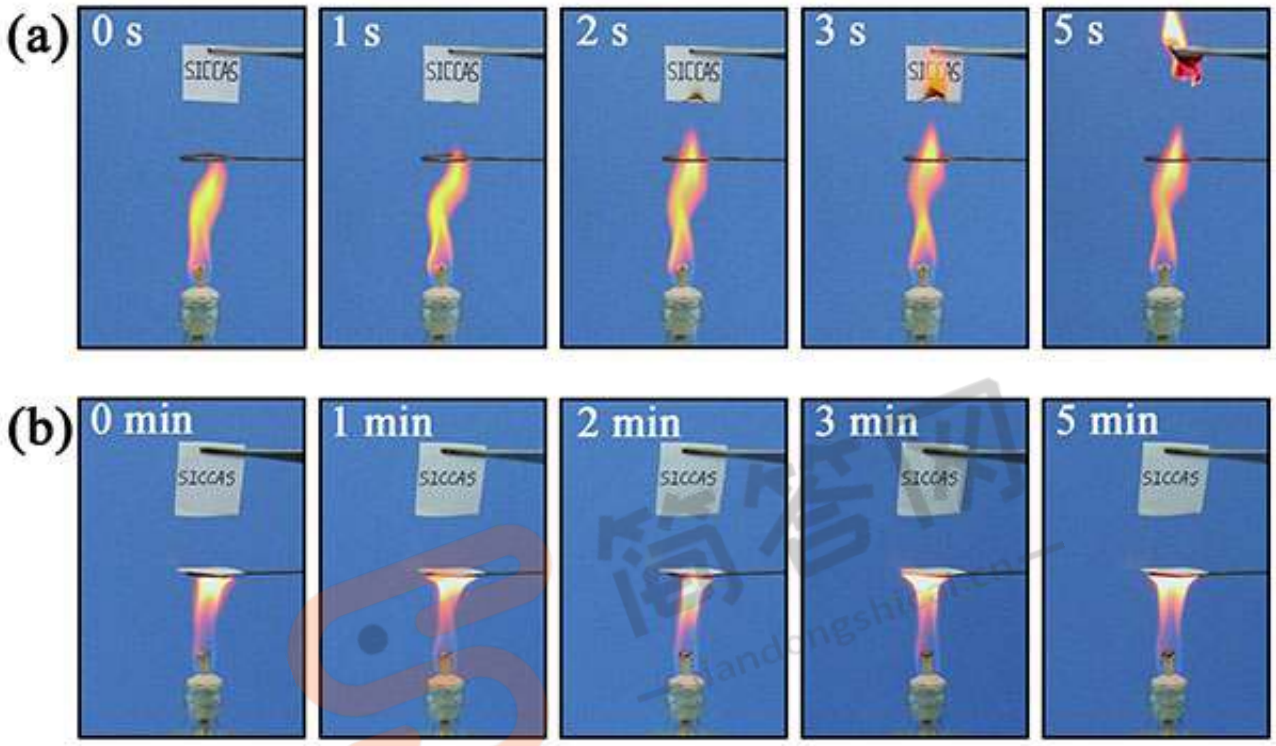
《厉害了！中国科学家发明防水防火纸！》

导读:中科院专家发明了一种新型纸张，既耐火又防水。



In January 2015, a fire in one of Russia’s largest university libraries damaged more than 1 million historical documents, an incident which some media described as a "cultural Chernobyl".

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important documents of our age can probably avoid the same fate in the future thanks to a new fire-resistant paper developed by a team of scientists at the Shanghai Institute of Ceramics affiliated to the Chinese Academy of Sciences.

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Zhu Yingjie, a researcher from the institute, and his team developed a set of methods to produce paper with a new material, hydroxyapatite, the inorganic constituent of tooth enamel and bone.

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The invention was reported on ACS Applied Materials and Interfaces, a peer-reviewed scientific journal of the American Chemical Society.

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The inorganic material is both fire resistant and water resistant.

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"Traditionally, paper is made of plant fibers, which are easily destroyed by liquid. Previous research attempts to produce waterproof paper found it was difficult to achieve fire retardancy and water repellency at the same time," Zhu said.

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In 2013, a doctorate student of Zhu was preparing hydroxyapatite nanowires. While he wanted to filter out the water and continue the experiment, he found that instead of getting hydroxyapatite powder on the filter paper, a film formed on the paper.

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The discovery inspired Zhu. He conducted more experiments to improve the material’s physical properties.

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"Traditional papermaking damages natural woods and damages the environment. Hydroxyapatite nanowires are an ideal building material for paper," Zhu said.

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The newly published paper shows that the inorganic material behaves like paper, but with excellent thermal stability and with astonishing mechanical wear resistance, according to an anonymous referee of a peer reviewer of ACS Applied Materials and Interfaces.

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