

Materials can 'self-destruct timer', creating self-erasing ink

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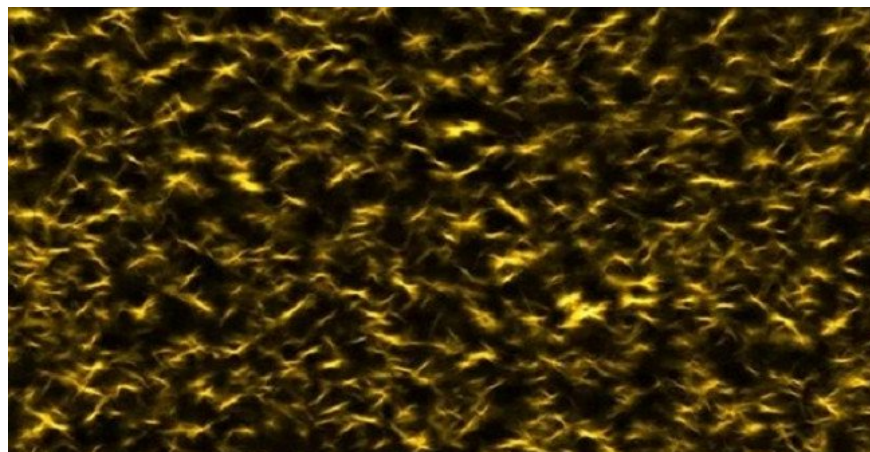
This new material with self-destructing ability needs a small amount of energy to survive and at a specific time, the energy will go away. This finding by scientists can be used in many other products, but in which ink disappears.

1. Discovered a new form of carbon, stronger than metal and more resilient than rubber
2. Japanese scientists successfully developed soft gel like jelly, 5 times stronger than steel

Currently, we treat waste by burning them into ash or recycling and then putting them back to use in different forms. But all these measures require a large amount of material or energy.

Most of the solids we produce are created by using a covalent bond, extremely strong bonds, very difficult to break. For example, a plastic polymer is formed by tough carbon bonds that bacteria cannot break down. This is also the reason why plastics are not biodegradable.

According to Job Boekhoven, a chemist at Munich Technical University in Germany, the molecular structures in life are always "in equilibrium", meaning that in order to operate they need to be provided with an intermittent energy flow. customary If the energy runs out, these molecules will dissociate and return to a simpler state.



Boekhoven and his colleagues decided to create some materials that need energy to maintain the current state, called **super molecular molecules** . Initially, they created a simple colloid from microscopic particles, about the size of 1% of a hair's diameter. These small particles when added with a material will move and arrange like a

pearl chain, they can adjust themselves to assemble and disassemble in a certain order at certain times.

Boekhoven said that he immediately thought that these materials could be used in the production of medicine caps, specifically that the material will protect the drug until it has reached the desired location. For example, with some drugs that produce stomach acid, the drug shell will be timed to disappear after entering the intestine.

In addition, the researchers also successfully tested a soft, transparent crystal material, but when one exposed to another fuel became opaque and cloudy. When the energy runs out, that fuel will disappear and the opaque spots become clear again.

Researchers said the special material could be used as a "self-erasing ink" to reduce paper use in things like invoices, tickets and receipts. We can create a temporary message and after a certain period of time, it will delete itself.

This study can also be used in tissue transplantation, it will disappear after it has developed its effect and the body has received enough.

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