

ACTIVATED CARBON FROM CABOT  
NORIT ACTIVATED CARBON  
ESSENTIAL FOR MANY PRODUCTS

# 'THE NEED FOR PURIFICATION IS INCREASING'

Activated carbon is used to remove contaminants and other impurities from products such as water, air, food, beverages and pharmaceutical products. Manufacturer Cabot Norit Activated Carbon is confident about the future. "The increasing concern for the environment, human health, and the growing population needing access to better water, food and beverages and medicines, drives the demand for purification".

By Igor Znidarsic

PHOTO: SHUTTERSTOCK

*Dutch drinking water, the quality of which is known to be one of the best in the world, is largely 'powered by Norit'.*

**M**ost people only know Norit from their pharmacists, but even if you never have intestinal problems, you will indirectly be dealing with this company on a daily basis. For example, when drinking decaffeinated coffee, eating sugar and taking certain medicines. For all of these products, activated carbon from Cabot Norit Activated Carbon was used somewhere in the production process. 'Even four times for a can of cola,' says Jim Makuc, Director of Global Technology & Marketing. 'To purify the water used to clean the can, to discolor the sugar, to purify the carbon dioxide and to purify the water used for the cola.'

One of the properties of activated carbon is to adsorb (bind) certain substances in a liquid or gas, giving it a purification function. For example, for contaminants in water. Dutch drinking water, the quality of which is known to be one of the best in the world, is largely 'powered by Norit,' according to Makuc. Activated carbon also contributes to a healthier environment by removing dioxins and mercury from the flue gases produced by power stations. Incidentally, the carbon never remains behind in the product, except when used as a coloring, e.g.

to turn licorice black.

In food production, activated carbon plays an essential role by removing flavorings, aromatic substances and colorings, such as caffeine from coffee, certain organic components from juices and discoloration from sugar to turn it white. In addition, activated carbon products are used by pharmaceutical companies to purify ingredients that are used to make medicines. The diarrhea inhibitor NORIT® is the only product intended for consumption.

The number of applications for activated carbon can be extended even more by adding certain chemicals to it. 'We can adsorb substances that would not be adsorbed by regular activated carbon,' explains Makuc. Naturally, there are other ways to remove substances from a product. 'But the advantages of activated carbon are its relatively low production costs and great flexibility: activated carbon can remove several components, while other processes, such as distillation, are usually limited to a single component.'

The Dutch company, Norit, was acquired by the American company Cabot Corporation, a global specialty chemicals and performance materials company, in 2012 and now operates under the

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## ACTIVATED CARBON

Activated carbon is a porous form of carbon that can bind all kinds of substances through adsorption, making it highly suitable for purification and filtering. The product has a large number of fine pores, whose size and mutual proportions are determined by the resource used and the activation method. A single teaspoon of activated carbon has an internal surface area of an entire football pitch. The production process consists of carbonizing and activating wood, coconut and nut shells, olive stones, coal and other organic materials through a thermal process.



The brand-new lab in Amersfoort. Many new products are being developed.

name Cabot Norit Activated Carbon. Among other products, Cabot produces carbon black, which is used to reinforce rubber components from car tires to hoses and belts, as a black pigment in ink & coatings, as well as other products including metal oxides, specialty fluids, aerogel and others. According to Makuc, Norit and Cabot are a good match. 'The expertise of both companies in the field of surface modification and carbon surfaces complements each other very well and forms a rather powerful technology when combined. In addition, Cabot is based in Boston, Massachusetts on the east coast of the USA, with an open view of the world, and Norit shares that global approach.' The people are also a good match: 'At Cabot I am used to an open and

direct way of communicating. Dutch people are also known for that.'

One of the advantages of the acquisition is that Cabot is a powerful global player that has been operating in Asia and South America for a long time; these are two markets where Norit did not have that much of a presence. 'Cabot's infrastructure continues to help us strengthen our activated carbon presence in those regions as well.'

In the Cabot Norit Activated Carbon headquarters in Amersfoort, which it moved into last year, the company has a brand-new lab. A lot of thought went into the design, to create a good and efficient work environment. Cabot's high standards in the field of health, safety and the environment were

also taken into account Makuc: 'On the one hand we are conducting research into new resources, to convert them into activated carbon. On the other hand we are developing products for customers with exactly the right pore structure and we supply the usage data.'

Many new products are being developed, including products relating to catalysts. The catalyst can be impregnated in the activated carbon and do its job from there. Furthermore, Cabot Norit Activated Carbon will be helping energy companies to meet the reduced emission standard for mercury. 'We are now working on the fourth generation of products, which remove mercury from flue gas even more efficiently.'

Laws and regulations for petrol emissions from cars are also being tightened, which requires new products to adsorb petrol fumes. For biogas, the company has developed a product to remove hydrogen sulphide and other contaminants enabling the methane to be used to power turbines without adverse effects. According to Makuc, Cabot Norit Activated Carbon's future is bright. 'Due to the increasing world population, the need for recycling resources is increasing. And more food is required. So the need for purification is increasing.' ■

## CABOT NORIT ACTIVATED CARBON

The N.V. Algemeene Norit Maatschappij was incorporated in 1918, created from a merger of three companies, a.o. the Norit Witsuiker Maatschappij. This company owned the license for the Norit process, at the time mainly used to remove the color from cane sugar juices. In 1915 a plant was built in Zaandam and in 1924 a plant in Klazienaveen was acquired. After World War II, the plant in Klazienaveen became the largest powdered carbon plant in the world. The production of the well-known Norit tablets was moved from IJmuiden to Amersfoort in 1958, where a new headquarters office was also opened in 1975. In the late 1970s, Norit was the largest exporter of activated carbon in the world. In 2012 Norit was acquired by Cabot Corporation, a leading global specialty chemical and performance materials company with 44 production sites in 21 countries. Cabot is organized into four business segments: Reinforcement Materials, Performance Chemicals, Purification Solutions and Specialty Fluids.