

**Precision
coatings
with
special
properties.**



Properties

cardient® HydroX is used as a "top" coat on other coatings to make them hydrophilic or hydrophobic.

It is made up of an amorphous carbon coating which has been doped with various precursors (O², N², NH_x, F, Si) in order to adjust the contact angle with water or oil. In addition the doping can be modified to provide anchor points for molecules such as drugs. 2.8 anchor points per nm² can be achieved.

The coating is particularly suited for use on cardient® FMC®

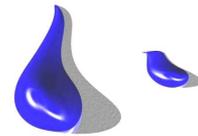
Diffusion resistance	10 ⁻⁵ with water
Thickness	10 - 30 nm
Contact angle with water (depending on doping)	20 - 100 °
Processing temperature	< 50 °C

Usage

- Polymer materials.
- Metals.
- Ceramics.
- Highly temperature sensitive materials.

Applications

- Microfluidic systems.
- Urological and vascular catheters.



Examples

- In order for microfluidic systems to work the surface needs to be very hydrophilic. This is the only way for small volumes of liquid to flow through narrow channels. With a 20 nm thick cardient® HydroX coating on top of the base material a contact angle of 20 ° can be achieved so that fluids flow well on the surface.
- It is common for implants to cause undesired inflammation, often caused by bacteria attached to the surface. If the implants are coated with cardient® HydroX with a coupled active component, which has been programmed to be released over a specific time period, any adverse effects can be reduced or eliminated.

Coating process

As with cardient® FMC® this coating is applied using a reactive gas-phase plasma. The characteristic surface properties are created by the ionised radicals and their energy levels, and also by the added doping gas C₂H₂. The contact angle is determined by the type and quantity of the process gas used.

As cardient® HydroX is applied at temperatures below 50 ° materials as diverse as plastics, metals and ceramics can readily be coated.

