

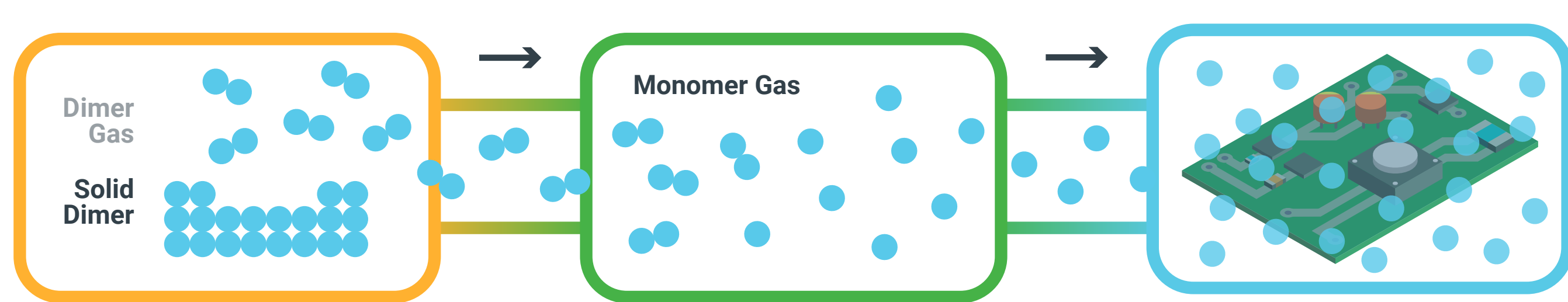


THE ILLUSTRATED GUIDE TO CVD

Chemical Vapor Deposition (CVD) is a vacuum deposition method used to produce high-quality, high-performance, solid materials such as thin-film coatings.

How Does CVD Work?

Molecule-by-molecule, the chemical vapor deposition vacuum process deposits layers of protective material, including Parylene.



1

Parylene typically begins as a solid dimer, vaporized to gas.

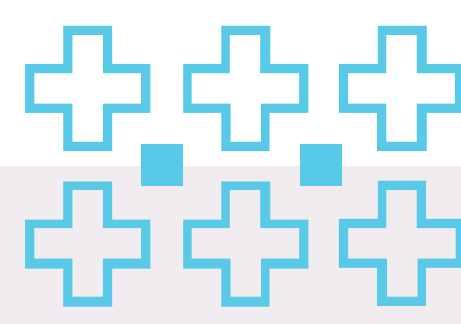
2

The gas goes through a pyrolysis chamber that cracks the dimer into two di-radical monomers before entering the deposition chamber.

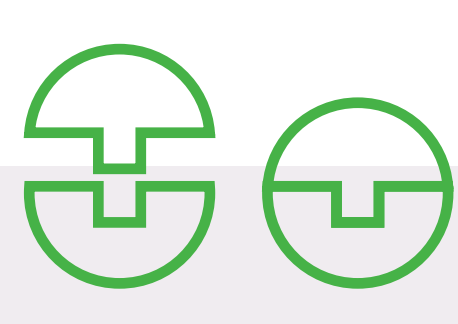
3

The monomers adsorb onto the substrate as a polymer.

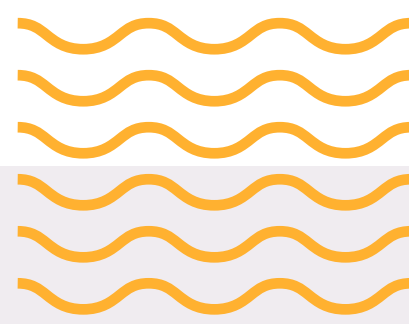
Benefits of CVD



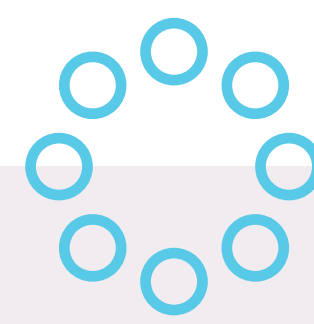
Can be used to coat intricate or complex surfaces



Films created through CVD maintain bonds with substrates

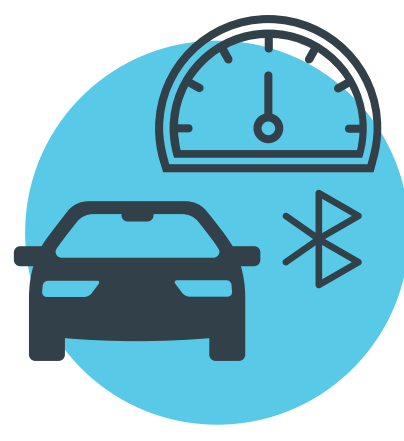


High uniformity, repeatability, and predictability



Coatings are typically pinhole-free

CVD Applications



Automotive electronics and sensors



Smart home security devices



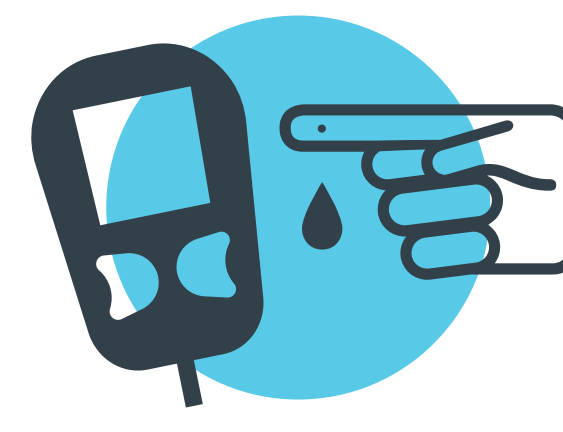
Consumer electronics



HVAC sensors



Smart city utility meters



Biosensors

More About Vapor Deposition

No matter the method, vapor deposition creates coatings that alter the mechanical, electrical, thermal, optical, and corrosion-resistance properties of substrates. The resulting dry coatings are durable and have reached optimal properties at the end of the production cycle without curing.



Did You Know?

The chemical vapor deposition (CVD) process started in the 19th century. In the 20th century, metals were deposited from the gas phase for application in the lamp industry. TiC was the first hard coating deposited by CVD in the 1950s.



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