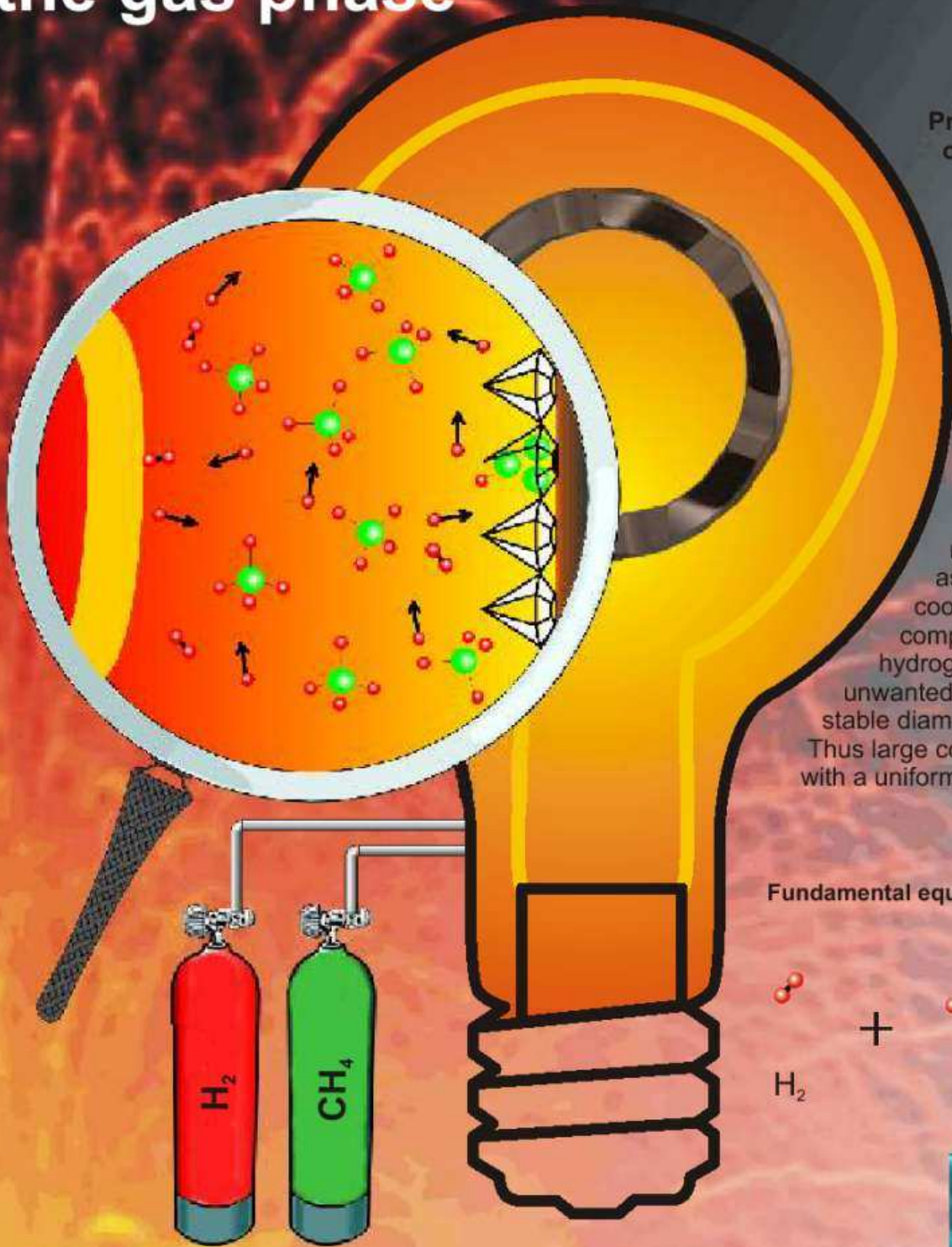


# Diamond coatings from the gas phase

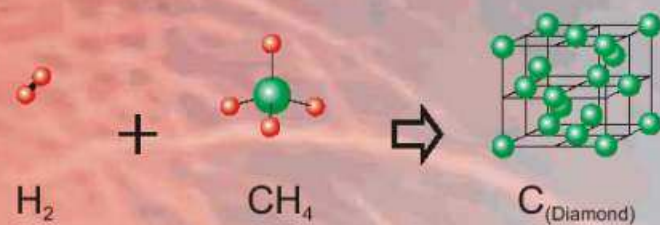


## Principles of diamond coating

Both diamond and graphite consist of pure carbon. They differ only in their chemical bonding. The process gas for diamond generation is generally a mixture of **hydrogen** and **methane**. The gas is activated by a hot filament (approx. 2000°C) and thereby the carbon from the methane is deposited as diamond and graphite on the cooler (approx. 800°C) component. The highly reactive hydrogen removes the unwanted graphite leaving the stable diamond behind. Thus large components can be coated with a uniform diamond layer.



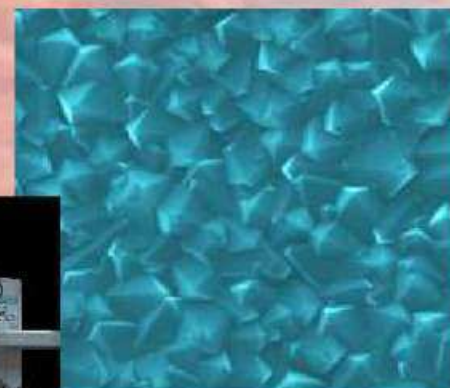
## Fundamental equation of diamond deposition



## Diamond - the unique material

-  highest thermal conductivity
-  low coefficient of friction
-  high wear resistance
-  highest hardness

diamond coating plant



synthetic diamond layer