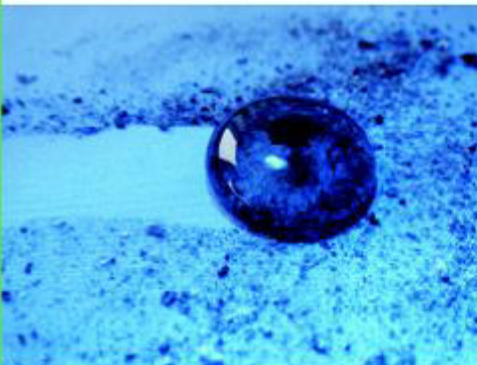




NANO-X GmbH



**Company for
Nanotechnology Solutions**

CHEMICAL NANOTECHNOLOGY

The business area of NANO-X GmbH is chemical nanotechnology - a process with which materials, such as coatings or 3-D objects, can be developed from minute nanocomponents of just millionths of a millimetre in size.

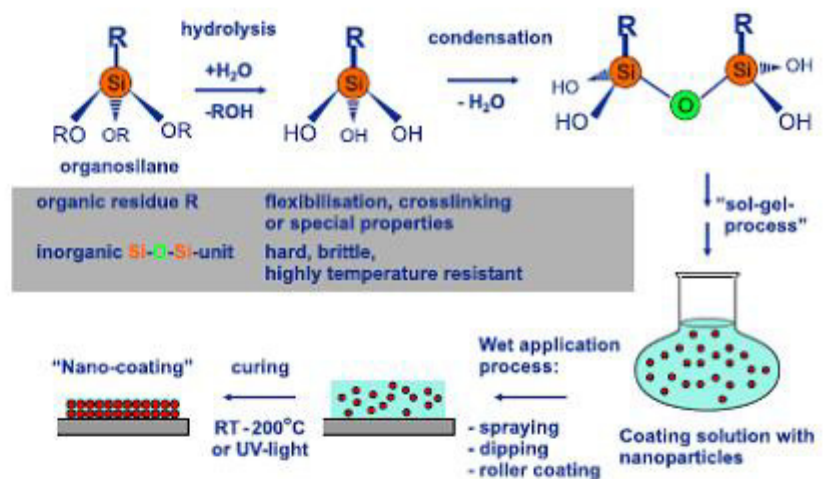
By varying the composition, shape, size or character of the surface, these nanoparticles can be shaped again and again like small building blocks, resulting in unprecedented scope for material design.

Introduction

FIELD OF APPLICATION OF CHEMICAL NANOTECHNOLOGY

One of the keys to the rapid developments in the field of chemical nanotechnology is the enhancement of the sol-gel-method.

This controlled growth and aggregation process of molecular units permits a targeted and reproducible representation of multi-functional nano-particulate systems.



Easy-to-Clean-Effect on chromium



The coating materials are largely water based or solvent free. By adjusting the rheology and the solids content, the systems can be individually adjusted to suit virtually all common coating procedures such as flooding, spraying, rolling or dipping. Materials can also be cured at room temperature through heat (IR) or light (UV, electron beam curing).

The variation range for the optimisation of material properties extends from vitreous-hard to polymer-soft with variable surface properties ranging from hydrophilic (Anti-fogging, Catalytic-Clean-Effect®) to completely water repellent (Easy-to-Clean-Effect or Self-Cleaning-Effect). The application of additional nanoparticles can generate further functions, such as extremely high levels of abrasion resistance, excellent corrosion protection, electrical conductivity or catalytic activity.

RANGE OF PRODUCTS OFFERED BY NANO-X

NANO-X GmbH develops and produces customised materials in the field of chemical nanotechnology with multi-functional properties.

The services provided by the company range from innovation consultancy to target-oriented adjustment developments to production and support in the application of the desired coating solutions. Moreover, NANO-X offers a portfolio of well-engineered material solutions in a comprehensive range of products.

Products

NANO-X BUSINESS UNITS

- Multi-functional corrosion protection for metals, such as protective coatings against scaling for steel or chromate-free, long-term corrosion protection for light metals
- Scratch-proof and abrasion-resistant coatings for plastics and metals
- Coatings with Catalytic-Clean-Effect® (photocatalysis) or Easy-to-Clean properties on plastics, glass, ceramics and metals, e.g. for building exteriors, sanitary or kitchen fittings, concrete paving stones, to name but a few applications
- Multi-functional anti-fingerprint coatings for stainless steel and PVD-coated surfaces, also for outdoor applications



Anti-fingerprint on stainless steel

- Anti-fogging coatings for glass and plastics
- IR- and/or UV-absorbing or -reflecting coatings, e.g. a high temperature-stable black coating for aluminium foil
- Impregnation of textiles, paper and leather with long-term-stable hydrophilic or hydrophobic and oleophobic properties
- Catalytically-active surfaces with properties that decompose odours, soot or dirt
- Binding agents and additives with nano-scale structures for customised formulations for industrial partners in the paint and varnish industry
- Special products for the consumer sector with Easy-to-Clean or Self-Cleaning properties, such as rain repellents for car glass, sealing of wheel rims or sealing of windows with Catalytic-Clean-Effect®

SUCCESSFUL EXPANSION

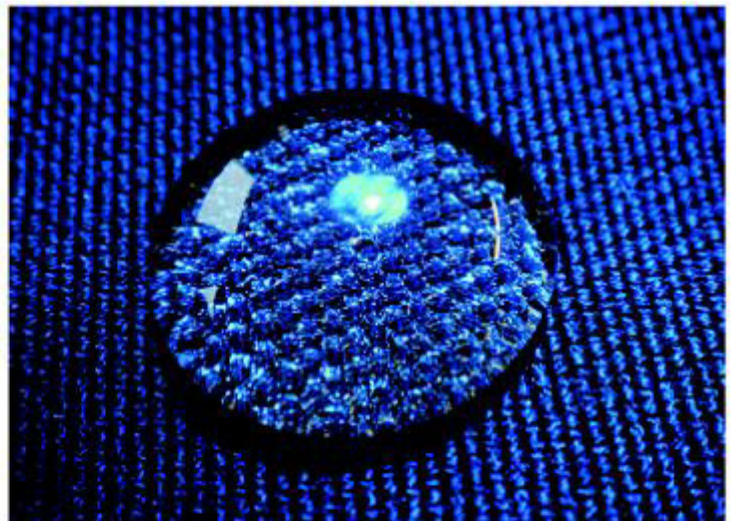
Developments made in the field of modern nanotechnology are characterised by a remarkably high degree of success. A multitude of new coating materials from NANO-X have already made their journey from niche and customised developments to serial production for the mass market.

This results in value added for the economy and society in the areas of application of mobility, communication, health, environment and energy.

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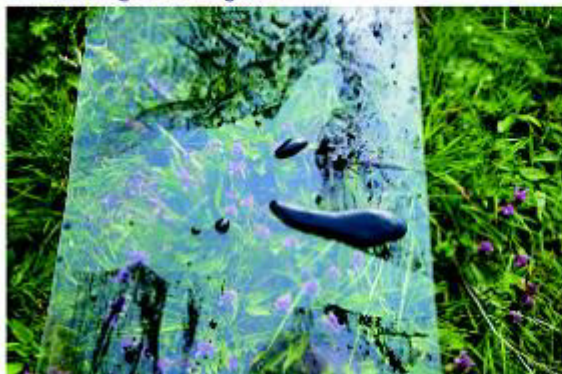
Since its establishment in 1999, NANO-X has earned its place as one of the leading companies in this sector. The company was set up without borrowed capital. Owing to the strong foundation of the enterprise, NANO-X is now able to continue pushing ahead with its national and international expansion from its own financial resources.

The company employs highly-qualified specialists in the fields of nano- and sol-gel-technology, production engineering, process engineering and quality assurance, thereby guaranteeing every customer a team of competent and top-level members of staff to provide services ranging from innovation consultancy to the development and production of high-tech coating materials.



Oil drop on impregnated fabric

Self-Cleaning-Effect on glass



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