



The future of lubricants

# What is GERnano®?

GERnano®

- results from many years nano- technology research for lubricants
- is the latest and groundbreaking unique product in the world of lubricants
- preserve machinery, lubricants and environment

The Nano Effect <sup>1</sup>



Nanotechnology is increasingly considered a quintessential future technology. Instead of "ever higher, ever farther" its motto is "ever smaller, ever faster, ever more efficient". Nanotechnology utilizes (novel) effects of the smallest structures in the space of a few nanometers – which is much more than producing the same functionality in less space. The potential for application is immense. Future progress in nanotechnology will also determine the further development of future-oriented branches. The Federal Ministry of Education and Research has presented an overall strategy for this area entitled "Nano-Initiative – Action Plan 2015".

*Any sufficiently advanced technology is indistinguishable from magic.*

Arthur C. Clarke



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# What is GERnano®?

Nano is an already wide spreaded term and used more and more for a lot of products. A lot of them pretend to do something new and for most of us magic work. Sometimes it's true and sometimes not.

In the case of lubricants, GERnano is a real scientific nanotechnology product, the only known in the market and is based on decades of research. GERnano is not just driven by reduction of friction with the positive effects. The self sufficient molecular structure allows internal cleansing, reduction of wear, adaptation to different friction zones in the same mechanism, a decrease of temperature and a ongoing recovery of the oil. And with no secondary negative effects such as acidified oil, sedimentation of particles, etc. GERnano by NanoVit has proofed since 2006 in many demanding long term use all its advantages, never failed or had to claim their insurance . It cannot be compared to any other available product on the market. We are happy to let you have the way how it was developed and the tasks given for your own studies on demand.

- it is added to oil but not an additive (in common meaning)
- it does not change the given composition of the oil
- it is not influencing oil analyses (0.002%)



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GERnano®

# What is GERnano®?

The product has been recognized by the scientific community and awarded several prestigious honors:

➤ Best of 2015 Industry Award from the Huber Verlag für Neue Medien GmbH for products with high economic, social, technological and environmental benefits



➤ Innovation Award of the Würzburger Automobil Meeting 2008



➤ Qualification for the Innovation Award of the German Economy



➤ Product fully certified by TÜV Thüringen



➤ Other studies from: University St. Petersburg ; University Lübeck; Hochschule Schmalkalden



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# What is GERnano<sup>®</sup>?

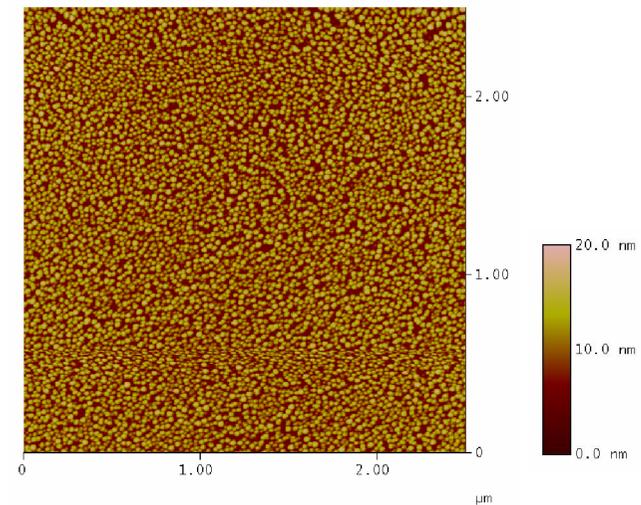
GERnano<sup>®</sup> is a special mixture of:

- ✓ Modified silicon oxide (SiO<sub>2</sub>) (14 nm), ,
- ✓ Aluminium oxide (Al<sub>2</sub>O<sub>3</sub>) (20-100 nm), and
- ✓ Plasma processed graphite(C)

This solid components are not soluble in petroleum raffinates

This composition is produced in a unique method by activating every component

GERnano<sup>®</sup> particles – Picture made from a raster electronic microscope:



1 nm = 1\*10<sup>-9</sup> m  
(4 atoms fits in 1nm)



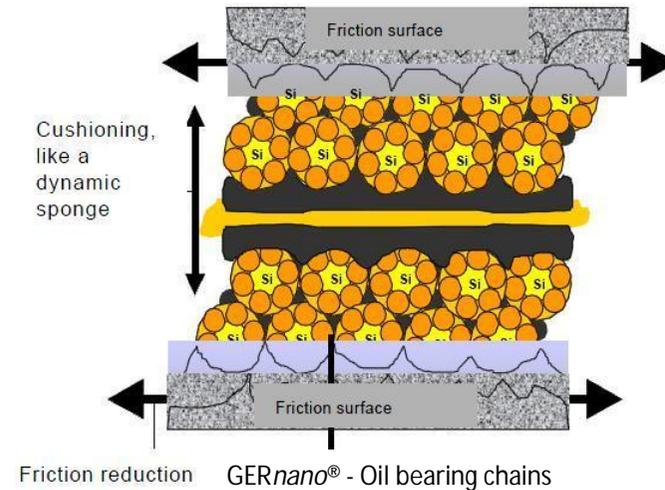
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# What is GERnano<sup>®</sup> doing?

The nano-particles from GERnano<sup>®</sup> are designed to lower friction, protect against wear and enhance lubricant properties

GERnano<sup>®</sup> was invented to avoid dry friction in:

- Engines
- Transmissions
- Gears
- Differentials
- Hydraulic Systems
- Others





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# What is GERnano<sup>®</sup> doing?

Engine cleansing not allowing more sediments, particularly where the frictional surfaces are concerned.

Reduction of friction. Modification of the frictional surfaces. The surface tension and wear will reduce.

Temperature reduction by forming new oil molecular structures in addition to lower friction.

Longer oil lifetime. Oil keeps chemical and physical characteristics of manufacturer with enhanced performance. The portion of solid particles, when used in oils, is between 0,001% and 0,002%

Adaptation to different metals, for example gear parts

A decrease of the engine's oil consumption



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# What is GERnano<sup>®</sup> doing?

Benefits:

1. Increase of the performance and dynamics of the engine.
2. Improved compression
3. Improved fuel economy
4. A reduction of emissions
5. Noise reduction
6. Economic as well as ecological efficiency by fuel- and engine-oil savings plus cost savings on maintenance intervals.
7. Temperature reduction
8. Extension of the engine's life span.



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# How does GERnano® works

Three-dimensional structures of oil-molecules are formed and the poles of these structures build certain groups, where GERnano® particles are enclosed.

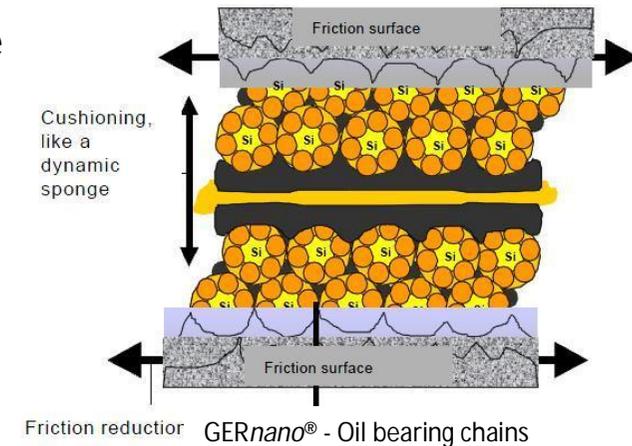
This gives the lubricant its' cleaning capabilities. The more pressure and temperature are applied, the more effective the cleaning process will be.

In a running engine the oil adapts itself to the changed thermodynamic conditions of the physical structure and the higher thermal viscosity.

The mechanical losses as well as wear of the engine will reduce.

Furthermore conditions will arise under which the frictional surfaces will modify constantly and a thin, yet malleable layer will be formed. This pliant layer will take up the entire pressure on the frictional surfaces.

Demolished oil molecules will regenerate themselves and the inevitable aging of the oil will be retarded.





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# Applications of GERnano®

## Industry

- Turbines i.e. used for electricity production
- Generators
- Shipping (except 2 stroke diesel with mix lubrication)



- Hydraulic
- Wind generators



- Heavy machinery (mining/ building ...)
- All machinery with big quantities of oil and especially hard work
- Engine / gearbox / differential manufacturers - Cars, trucks, bikes ...





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# Applications of GERnano?

## Institutional

- all town traffic of busses and all official vehicles

- 1) to reduce fumes/ smog
- 2) less fuel
- 3) reduced maintenance



- postal services and others in stop and go traffic save beside all a.m. advantages batteries and starters of engines



- boats and ships with all a.m. advantages

- save immense cost / reduce fumes and smog which can also be used in a political caring aspect for their marketing (i.e. Beijing, Jakarta, Sao Paulo, Mexico City...)



- military vehicles



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# Applications of GERnano®

End users

-Cars

- 4 stroke bikes

with additional advantages in  
gearbox/ gear change

Motorsports

- all engines

-all gearboxes (usually expensive ways of cleaning  
surfaces are chosen by teams)

- all differentials



- increase of power, especially on low  
revs for much better acceleration due  
to low friction
- reduction of consumption
- pay for itself within short
- less oil changes



lead to better performance and especially for long distance racing to more reliability - it is not an additive and does not change the composition of the oil.



THANK YOU

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