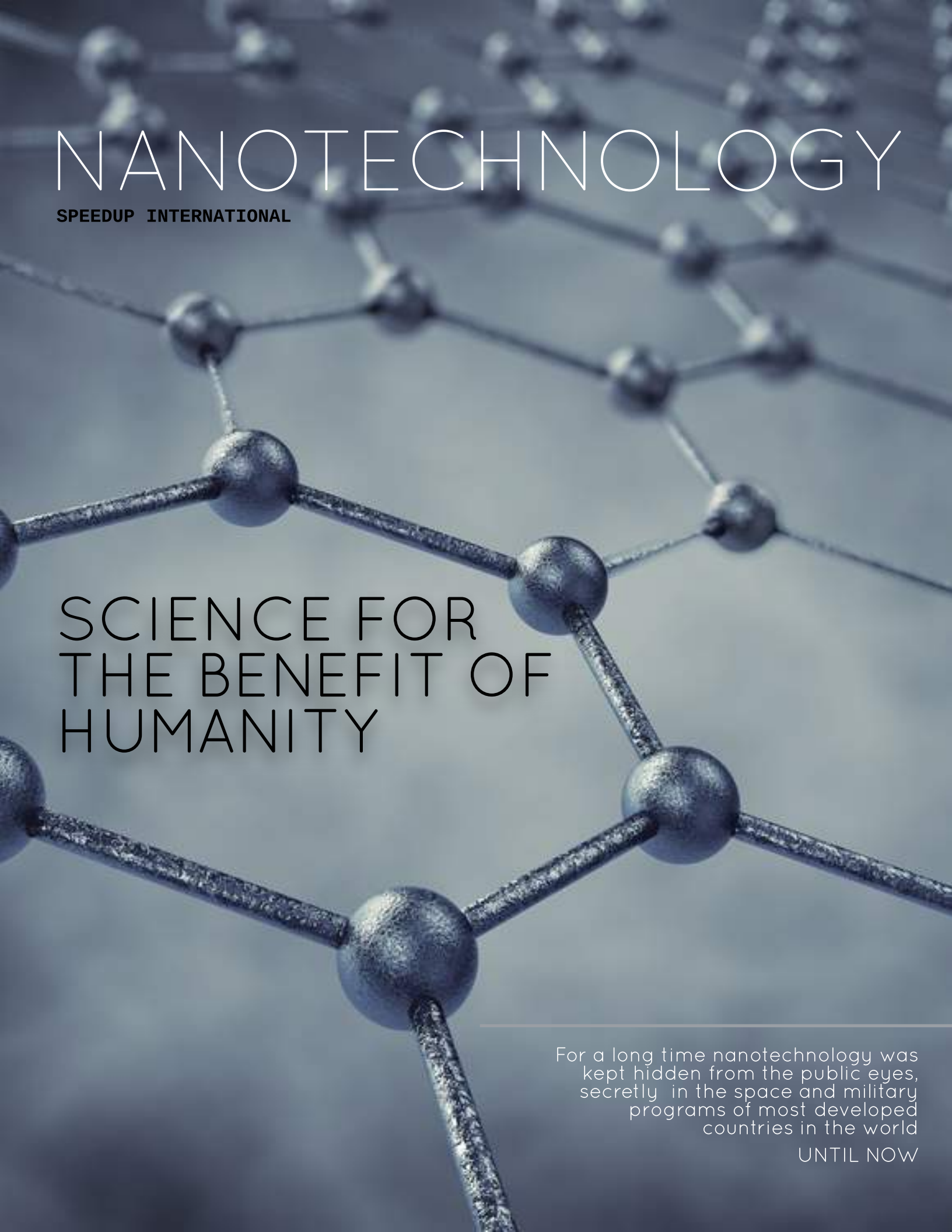
NANOTECHNOLOGY

SPEEDUP INTERNATIONAL



SCIENCE FOR THE BENEFIT OF HUMANITY

For a long time nanotechnology was kept hidden from the public eyes, secretly in the space and military programs of most developed countries in the world

UNTIL NOW

NanoMaterials
an NIS corporation

INTRODUCTION

SpeedUP International specializes in development of inorganic, multi-layered nanofullerenes, based on exclusively patented platform technology developed at the Weizmann Institute of Science in cooperation with NanoMaterials Ltd. These tungsten disulfide (WS_2) based nanomaterials opened up new possibilities for developing extreme performance lubricants, coatings and polymer composites. The composition and morphology of these materials create a unique mechanism of friction-induced tribofilm release. The exfoliated nanoparticles attach to working-surfaces, fill in wear crevices and coat working surfaces with a continuous super-lubrication layer. This "surface reconditioning" effect was instrumental in the successful development of NIS's Corp, award winning NanoLub® family of Extreme Pressure (EP) Anti-Wear (AW) and Anti-Friction (AF) lubrication additives. The Company's R&D department is involved in extensive research and testing for additional WS_2 based applications in the field of lubricants, coatings and polymer composites for such industries as defense, mining and metalworking.

SCIENCE FOR THE BENEFIT OF HUMANITY

Most benefits of nanotechnology depend on the fact that it is possible to tailor the essential structures of materials at the nanoscale to achieve specific properties, thus greatly extending the well-used toolkits of materials science. Using nanotechnology, materials can effectively be made to be stronger, lighter, more durable, more reactive, more sieve-like, or better electrical conductors, among many other traits.

Our vision has attracted the best minds in the fields of nanotechnology, chemistry, and various targeted industry applications like lubricating oils, greases, coatings, metal working fluids, polymers and composites. Our team of scientists, engineers, marketing professionals and sales engineers are working together, each contributing within their field of expertise, to develop products that address the needs and opportunities of the industrial marketplace.

SpeedUP nanotechnologies

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It's hard to imagine just how small nanotechnology is. One manometer is a billionth of a meter, or 10-9 of a meter. Here are a few illustrative examples:

- There are 25,400,000 nanometers in an inch
- A sheet of newspaper is about 100,000 nanometers thick
- On a comparative scale, if a marble were a nanometer, then one meter would be the size of the Earth

Nanoscience and nanotechnology involve the ability to see and to control individual atoms and molecules. Everything on Earth is made up of atoms—the food we eat, the clothes we wear, the buildings and houses we live in, and our own bodies.

NANOTECHNOLOGY

But something as small as an atom is impossible to see with the naked eye. In fact, it's impossible to see with the microscopes typically used in a high school science classes.

The microscopes needed to see things at the nanoscale were invented relatively recently, about 30 years ago. Once scientists had the right tools, such as the scanning tunneling microscope (STM)and the atomic force microscope (AFM), the age of nanotechnology was born.

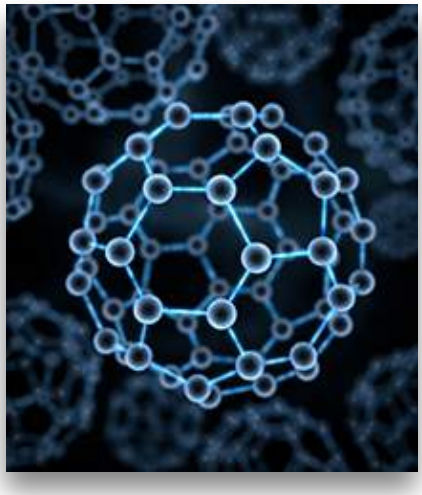
Nanotechnology term was used regarding subsequent work with related graphene tubes (called carbon nanotubes and sometimes called Bucky tubes) which suggested potential applications for nanoscale electronics and devices.

Today's scientists and engineers are finding a wide variety of ways to deliberatelymake materials at the nanoscale to take advantage of their enhanced properties such as higher strength, lighter weight,increased control oflight spectrum, and greater chemical re-activity than theirlarger-scale counterparts.

Buckminsterfullerene C_{60}, also known as the buckyball, is a representative member of the carbon structures known as fullerenes.

Fullerens were discovered in 1985 by Harry Kroto, Richard Smalley, and Robert Curl, who together won the 1996 Nobel Prize in Chemistry.

WS_2 fullerens can be used for Anti-Wear and Anti Friction Oil and Grease Additives for Extreme Pressure Applications as well as Fully Formulated EP Oils, EP Greases and Dry



Coatings. Our products are specifically designed for use in different Industrial and Automotive applications such as engines, gear boxes, bearings, compressors and many more.

Our nano products are based on NIS's award winning, patented platform technology of proprietary super strong tungsten disulfide WS_2 multilayered nano fullerene-like particles.

Due to its size (50-200 nm) and morphology of WS_2 nanoparticles, they easily fill the asperities and irregular surface of the metals providing excellent load bearing and anti-wear properties.

Our teams of scientists are currently resurching posabilities of these WS_2 nano fulleren like particles for apliance on large varieties of industrial and military use

HOME LINE

NANOTECHNOLOGY

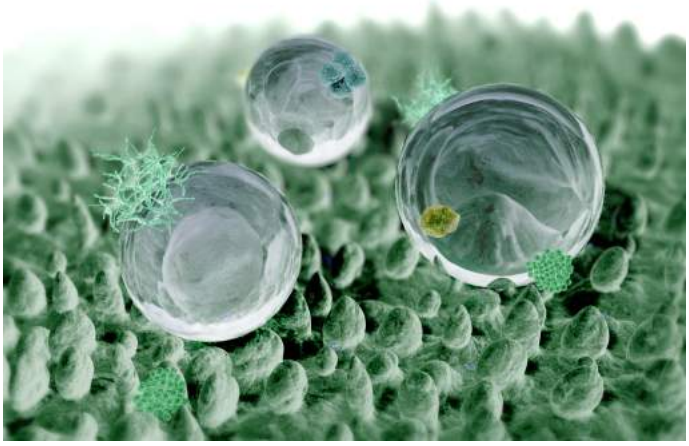
Nanotechnology is an interdisciplinary science that includes physics, chemistry, biology, materials science, and a wide set of engineering disciplines today available for home use!

Ultrahydrophobic (or Superhydrophobic) surfaces are highly hydrophobic or extremely difficult to wet. The contact angles of a water droplet exceeds 150° and the roll-off angle/contact angle hysteresis is less than 10°. This is also referred to as the Lotus effect, after the superhydrophobic leaves of the lotus plant. A droplet impacting on these kind of surfaces can fully rebound like an elastic ball,or pancake.

This Superhydrophobic ability can be added, via use of nanotechnology, on almost any surface and material, making it more durable to outside effects. SpeedUP International company in cooperation with NanoMaterials Ltd. has developed a wide variety of products that allow such appliances to every day home objects.

These products are:

- Easy to apply
- Oleophobic
- Transparent
- Hydrophobic
- Easy to maintain and
- Environment friendly



Water droplet bouncing of a plastic nano coated surface

NANO SYSTEM PSL

FOR THE USE ON: Stainless steel, painted metal surfaces, plastic, plexiglass, lacquered surfaces.

FEATURES: Strong and oleophobic and hydrophobic properties, creating the effect of non-sticky surface with the characteristics of easy cleaning. Nano layers are invisible to the naked eye, UV stable and chemically resistant to the PH13. Thermal resistance is expressed to 450 ° C. Nano System PSL is resistant to abrasion and safe in contact with foodstuffs (completely inert after 24 hours).

APPLICATION: Thorough clean the surface from grease, dust and dirt. Use cleaning products that leave no residues after use. In a well-cleaned surface in a circular motion, moistened cotton swab, apply the product. After a few minutes of drying, use second dry cotton or microfiber cloth to lightly polish the surface until the traces of nano layers are completely removed . Formed nano structures are fully stable after 24 hours. After this time, the treated surfaces can be tested for their effects of superhyrophobic, anti-sticky and easy cleaning effect.

CONSUMPTION: 5-10ml / m2

NANO SYSTEM PSL 100ml

www.nanotehnologije.com

NANO SYSTEM TNW

FOR THE USE ON: Clothing and footwear of textile and suede, paper, paperboard and natural wood.

FEATURES: Superhyrophobic (water-repellent), oleophobic (repels oil) with the effect of easy cleaning, invisible to the naked eye, UV stable, chemical resistant PH13, steam permeable, durable in spite of multiple washing and cleaning. Provides excellent protection against various types of stains. It does not change the texture and color of the material.

APPLICATION: The surfaces to be treated must first be clean and dry. Thus prepared surfaces moisture by spraying or dipping in nano-liquid and leave to dry. Ultra-thin nano layers are fully formed and stable after 24 hours. Only after this time it is possible to test the effects of superhydrophobic and easy to clean effect. If the treated materials are previously washed with detergents, it is necessary to thoroughly clean materials with water to remove any detergent remains. Items protected with product Nano System TNW, when washed in the washing machine, require a smaller amount of detergent than is otherwise normal.

LASTING NANO PROTECTION : 30 machine washes.

CONSUMPTION: 25-100ml / m2, depending on the thickness and absorbency of material to be used on.

NANO SYSTEM TNW 100ml

Water droplet standing on a nano coated textile surface

Applying nano-particles on wooden material


Applying nanotechnology on
solar panel plate

Clustered water droplets on a glass nano coated surface

NANO SYSTEM GC

FOR THE USE ON: Glass and glazed ceramics.

AREAS OF APPLICATION: Glass surface (solar panels, windows, glass shower stalls, mirrors), all kinds of glazed ceramic surfaces. Because of its specific formulation Nano System GC can be used as invisible and UV-resistant shield against a variety of dirt and water on all glass surfaces and areas of glazed ceramics.

APPLICATION: Thorough clean the surface from grease, dust and dirt. Use cleaning products that leave no residues after use. In a well-cleaned surface in a circular motion, moistened cotton swab, apply the product. After a few minutes of drying, use second dry cotton or microfiber cloth to lightly polish the surface until the traces of nano layers are completely removed . Formed nano structures are fully stable after 24 hours. After this time, the treated surfaces can be tested for their effects of superhyrophobic, anti-sticky and easy cleaning effect.

CONSUMPTION: 5-10ml / m2

NANO SYSTEM GC 100ml

NANO SYSTEM MS

FOR THE USE ON: Porous mineral surfaces (concrete, natural stone, terracotta, facades, interior walls).

APPLICATION: Ultra thin nano layers provide effective protection against water, oil and various impurities giving them the effect of self-cleaning surfaces. Nano System MS is intended for use on porous surfaces that are characterized by a pronounced absorption characteristics. Because of its specific formulation product can be used as invisible and UV-resistant shield against moisture and dirt on natural mineral surfaces such as stone sandstone, concrete, porous ceramics, tiles, bricks and various stone coverings.

ADVANTAGES

- Do not affect the external appearance of the material (thickness: 100-150 nm)
- A strong hydrophobic and oleophobic properties
- Nano coating is formed and fully stabilized at ambient temperature without additional energy or using UV light
- Resistance to washing under high pressure (50-60 bar)
- Excellent efficiency with low fuel consumption
- Without influence to the existing background color
- Resistance to high temperature
- Full resistance to frost and cold

OTHER POSITIVE EFFECTS

- Liquid contamination through the material pores is not possible
- Treated surfaces are easy to maintain
- Nano layers do not close the existing material pores and allow natural air circulation through them
- Drastically reduce the possibility of the formation of mold and fungi
- Extended service life of the treated surfaces because of less frequent cleaning intervals
- Extended protection of the surface structure of the material

CONSUMPTION: 25-50ml / m2

Nano coated hydrophobic brick wall

NANO SYSTEM MS 150ml

NANO ADDITIVES

NanoMaterials Ltd. is a pioneer of inorganic, multi-layered fullerene production technology.

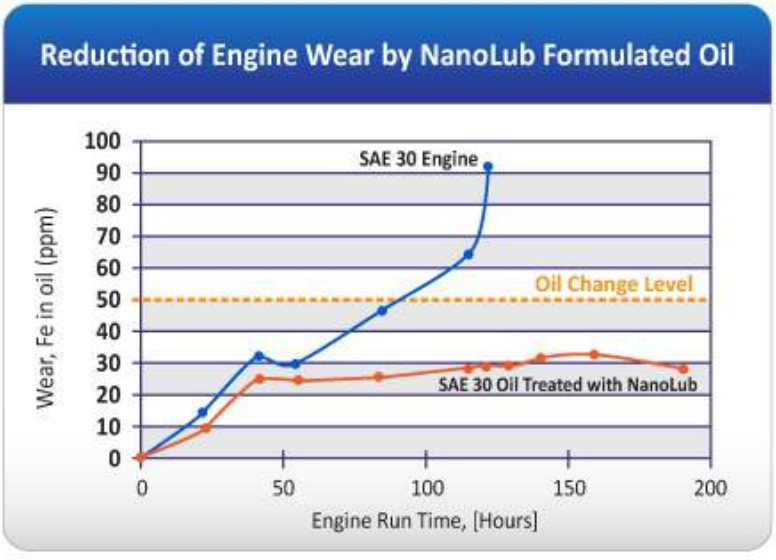
The company was the first to succeed in commercially producing multi-layered, spherical and tubular nano-structures from inorganic materials.

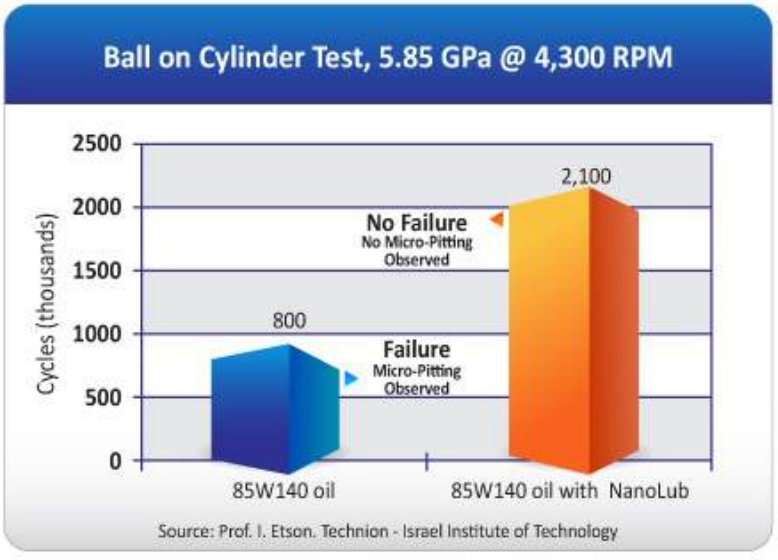
The first inorganic compound synthesized by NanoMaterials into multi-layered, spherical and tubular shapes has been tungsten disulfide (WS_2). These particles have notably high pressure, impact and heat resistances. They have low chemical reactivity, low toxicity and high metal bonding capacity.

These properties, in appropriate formulations, can facilitate the creation of "super performing" lubricants, coatings, and polymer composites. Benefits of which include:

- Better performance under extreme conditions
- Better impact resistance
- Greater energy efficiency
- User-safe and environmentally friendly
- Superior capacity to extend the life and effective operation of working mechanisms

NanoMaterials' inorganic, WS_2 multi-layered nano-spheres represent new generation, dual-acting nano-lubricants.





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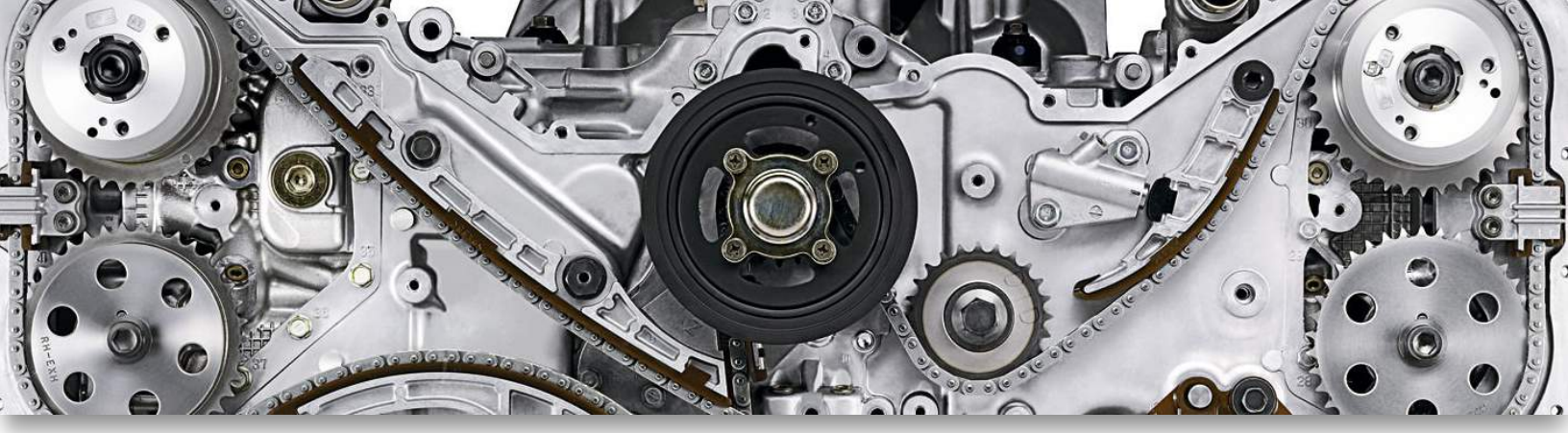
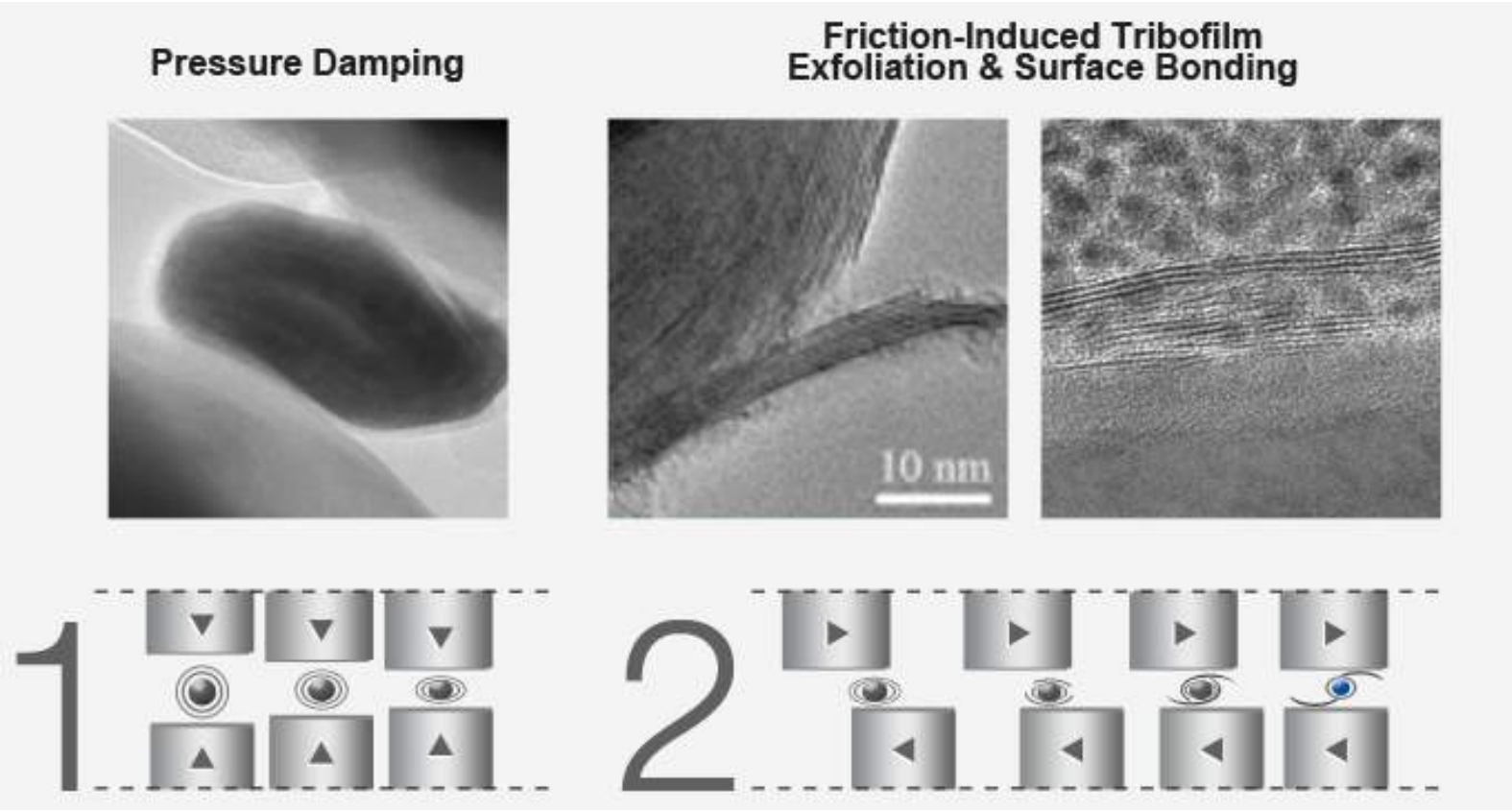


Surface-Reconditioning Mechanism

NanoLub® WS_2 multi-layered nano-fullerenes define a new generation of dual acting lubricants: nano-particle enhanced lubricants that combine advanced anti-friction (AF) and anti-wear (AW) functionalities. NanoLub® WS_2 introduces the concept of continuous surface re-conditioning.



Under continuous friction, the WS_2 nano-fullerenes exfoliate and create a tribofilm layer. The exfoliated nano-particle layers accumulate in wear crevices on contacting surfaces and attach to the metal surface, creating a continuous super-lubricating coating layer. This super-lubricating tribofilm layer stays attached to the contacting surface even if the lubricating oil is drained out.

This unique surface-reconditioning ("wear repair" & surface coating) mechanism makes NanoLub® a dual-acting AF/AW agent that also extends the life and effective operation of both machinery and lubricant beyond the capacity of conventional lubricants.

Dual-acting, surface reconditioning nano-lubricants offer enormous advantages:

- More efficient machinery operation (slower decrease of efficiency due to wear, less impact of heating)
- Longer machinery life (continuous wear-damage reversal)
- Better operation under stress conditions (high-load, high temperature)
- Longer effective oil lubricant life (less heating, less friction, less need for erosive additives in formula)
- Reduced energy consumption
- Lower emissions Lower service requirements (wider intervals)
- Reduced operating noise (thanks to super lubricated operation)

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NANO ADDITIVE RC-X BIKE 150ML

NanoLub RC-X is a new generation surface-reconditioning nano lubricant for engine oil. Featuring a unique double action effect: Multi-layers WS2 nano-spheres lower friction and heat, thereby reducing mechanical wear. At the same time, friction causes nano-spheres to release tribofilms that attach to surface crevices and re-smoothen them, thereby extending mechanical efficiency and apparatus life. NanoLub RC-X is based on formulated mineral oil concentrate mixed with NanoMaterials proprietary super-strong Tungsten Disulfide (WS2) multi-layered nanofullerene particles.

Product Features:

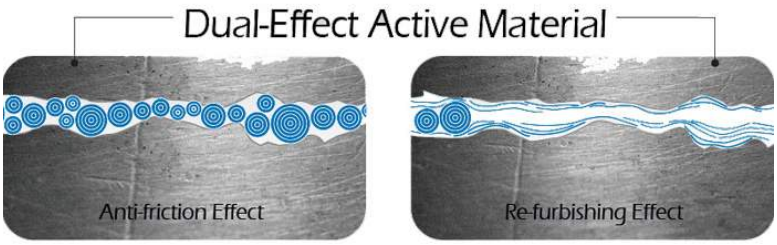
Especially formulated for low friction - significantly reduces friction in engines in comparison to traditional lubricants. Unique nano-technology to minimize engine wear - special formula creates a tenacious tribofilm that remains even after oil change, protecting your engine. This means longer equipment life and extended maintenance intervals. Two-for-One solution. No need for two separate additives; simpler and less expensive to use with strong benefits.


Gain a winning edge by using
Nano Additive RC-X Bike
www.nanotehnologije.com
REPSOL
93

NANO ADDITIVE
RC-S CLASSIC 250ML

Nano RC-S Classic Diesel Engine Oil Additive is a new generation surface-reconditioning nano lubricant for engine oil, based on Synthetic Oil concentrate mixed with NIS's proprietary super strong tungsten disulfide (WS_2) multilayered nano-fullerene particles.

- Suitable for all types of automotive Diesel engines
- Superior Extreme Pressure (EP) Anti-Friction (AF) and Anti-Wear (AW) properties
- Compatible with all types of oils: synthetic, semi-synthetic or mineral
- Can be used as part of the additives package for fully-formulated ready to use engine oil or as a top up after market product



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Specially formulated to boost the performance of diesel engine cars

NANO ADDITIVE RC-S
TRUCK 900ML

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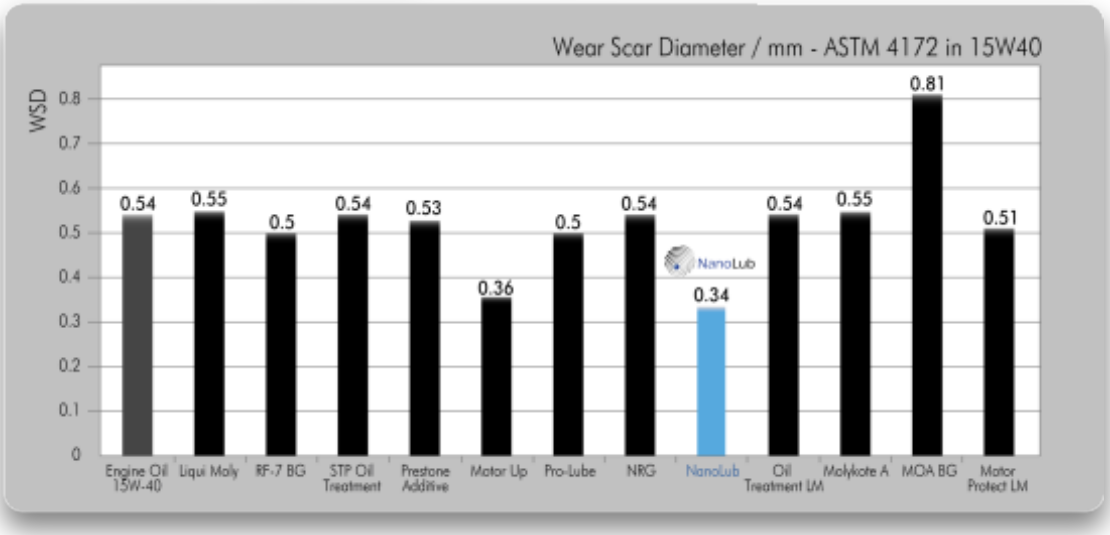
4-ball Performance Tests: Engine Oil

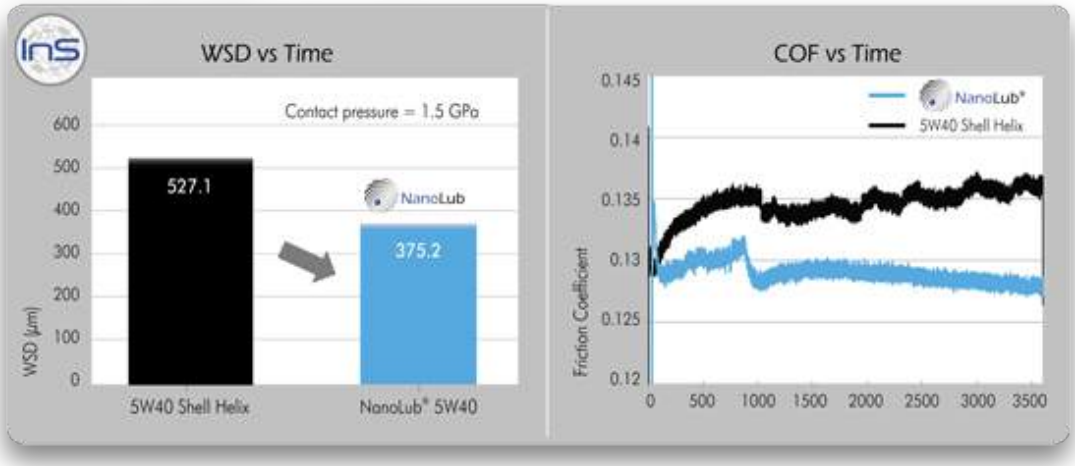
NanoLub® enhanced top-up additives applied to 15W40 engine oil reduces Scar Diameter vs. traditional brands.



FOR TRUCKS AND BUSES

SRV Performance Tests: Engine Oil

ASTM D5706 - ISO 12156-1



Nano Additive RC-X Truck Engine Oil Additive is a new generation surface-reconditioning nano lubricant for engine oil, based on Synthetic Oil concentrate mixed with NIS's proprietary super strong tungsten disulfide (WS_2) multilayered nano-fullerene particles.

RC-X INDUSTRIAL ADDITIVE ENGINE OIL - FOR WHEN YOU REALLY NEED IT

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NANO ADDITIVE
RC-X INDUSTRIAL 900ML

Nano Additive RC-X Industrial is based on a unique patented technology using solid tungsten disulfide (WS2) multilayered nano fullerene-like particles. These unique multi-layer IF-WS2 nano-spheres are well-known to show outstanding temperature (-270 °C to 450 °C), shock (5,076,000 PSI) and pressure (4,263,000 PSI) resistance and renders them to be versatile under extreme operating conditions including high and ultra-low temperatures, high pressure and high vacuum, high load, high rotating speed, high radiation and corrosion conditions.

Due to its size (50-200 nm) and morphology of IF-WS2 nanoparticles, they easily fill the asperities and irregular surface of the metals providing excellent load bearing and anti-wear properties. Under high loads (>1 GPa), the layers peels from the spheres forming a thin protective monolayer of WS2 on the surface of the metal thereby reducing friction and wear between the metals.

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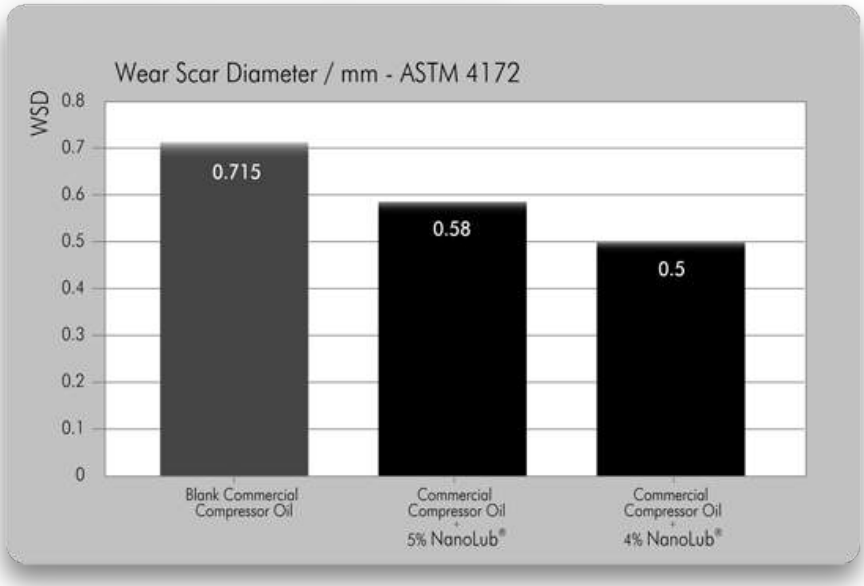
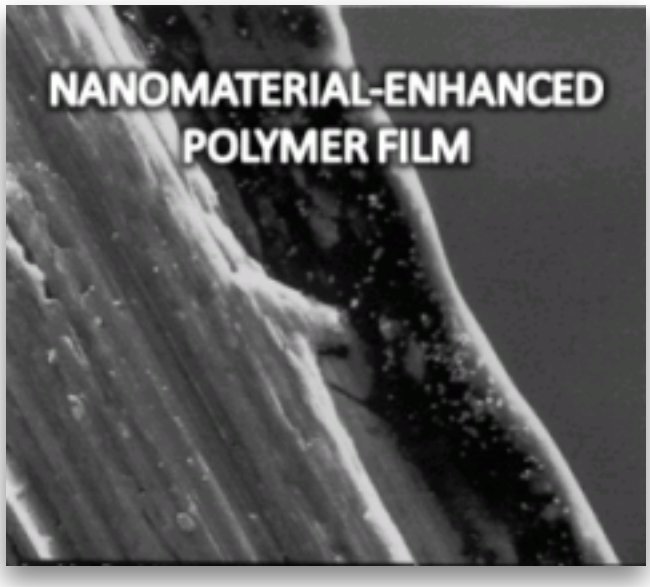
Wear Scar Diameter Test

Blank Compressor Oil vs. formulated with NanoLub®.



INDUSTRIAL APPLICATION FOR NANOTECHNOLOGY

Claim the power of fulleren like WS2 nano particles



Our company's breakthrough inorganic, multi-layered nano-structures are particularly promising for applications in thin surface-coatings for friction and wear protection.

The unique 'onion-like' structure of concentric WS_2 layers reacts to abrasion by exfoliating thin outer-layers of particles that coat surfaces with a continuous lubricating layer. This innovative "dual acting" inorganic dry lubricant combines super-lubricating and surface reconditioning coating functions.

These dual acting dry lubricants can yield a 3-fold reduction in friction coefficients of impregnated surfaces – consequently reducing wear significantly.

NanoMaterials' inorganic fullerenes and nanotubes can also be incorporated with non-polymeric media, thus forming metal and ceramic matrix composites.

The company's WS_2 multi-layered nanospheres are a remarkable scientific and commercial achievement. Technology platform can produce extremely uniform and highly symmetrical spherical structures, composed of 20-100 concentric layers of inorganic compounds. The diameter of the primary particle can range between 30 and 70 nm.

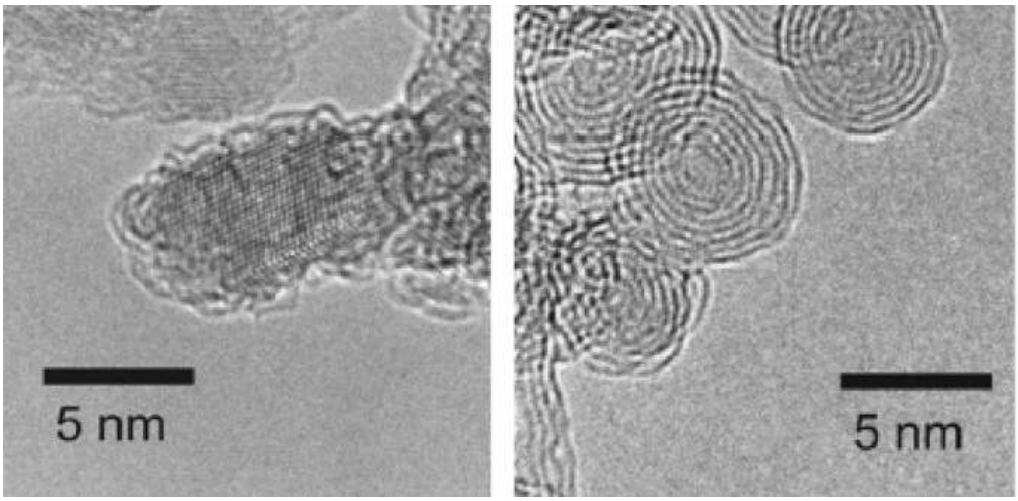
These multi-layered particles are extremely thermal- and pressure- resistant. Additionally, their outer layers exfoliate under extreme pressure, bonding with working surfaces to fill in wear crevices and to create a continuous super lubricating coating layer. The field of lubricants was thus a natural first application for NanoMaterials inorganic nano-fullerenes.

As "super lubrication agents", WS_2 nano-fullerenes have proven their capacity to reduce wear by up to 30%, depending on the base oil and working conditions. It has also been established that the tribological efficiency of the company's WS_2 nano-fullerenes actually increases with contact pressure.

Nano coated industrial tools show significantly better performance and have significantly longer lifetime

NANO SYSTEM 015

Product Nano System 015 represents the latest generation of resources on the basis of tungsten disulfide, for thin-layer protection of metal surfaces. It is characterized by exceptional anti-friction, anti-wear, anti-corrosion and heat resistant properties. It can be used as an ideal tool for dry lubrication over a wide temperature range up to +300°C. It is a top friction and anti-wear protection and it is used as a effective dry lubrication of various kinds of metal parts for work in most extreme conditions of high temperature and pressure.



Nano fulleren-like particles seen under high-powered microscope

A Pile of Tungsten Disulfide (WS2)

Our specially developed formulation was inevitable necessity for the future development of industry

NANO SYSTEM WS2

Product Nano System WS2 represents the latest generation of spherical nano particles of tungsten disulfide fullerene like structure. It is characterized by exceptional anti-friction, anti-wear and heat resistant properties. Nano System WS2 can be used as an ideal tool for dry lubrication over a wide temperature range from -180°C to +650°C, the chemical stability is maintained up to +1250°C.

Its specific fullerene structure preserves and revitalizes protected area during their exploitation and allow them more efficient and longer life.

It is used as a top friction and anti-wear protection and as a means for effective dry lubrication of various kinds of metal parts used in the most extreme conditions.

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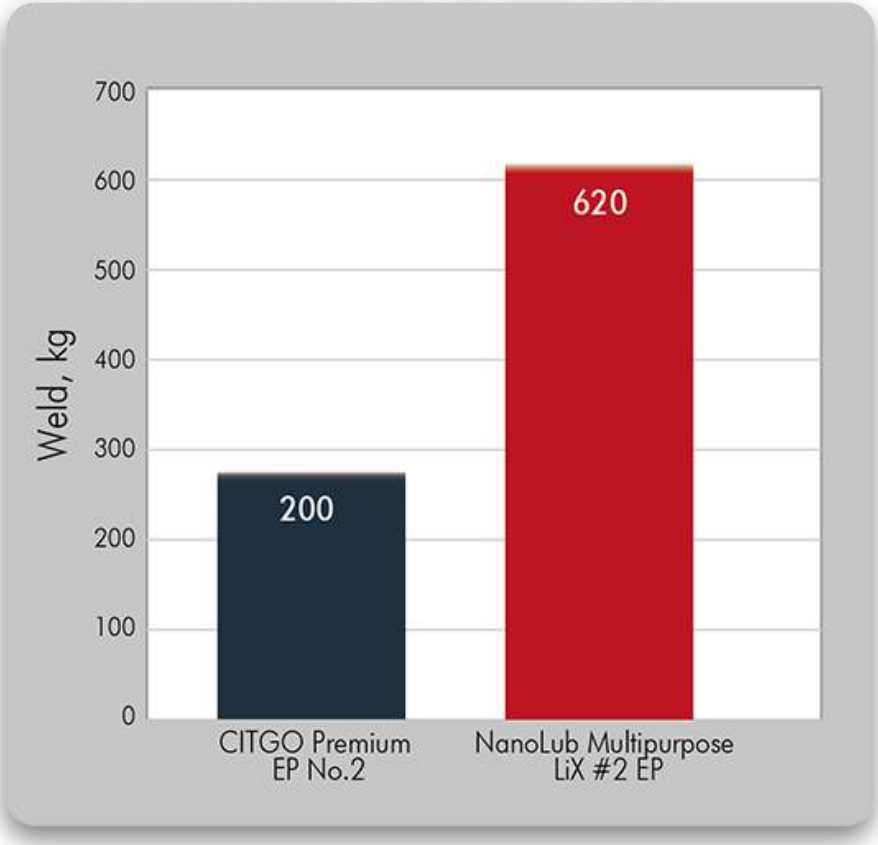
Nanotechnology industrial applications

- LONGER ENGINE LIFE
- LOWER ENGINE NOISE
- LIGHTER ENGINE WORK
- LONGER TOOL LIFETIME
- REDUCED ENGINE WEAR
- LOWER FUEL CONSUMPTION
- BETTER OPERATING PERFORMANCE
- BETTER ENGINE TORQUE AND STRENGTH
- REDUCED ENERGY CONSUMPTION
- HIGH TEMPERATURE TOLERANCE
- FEWER SERVICES REQUIRED
- ANTI-FRICTION EFFECT
- EASIER ENGINE START
- ANTI-WEAR EFFECT
- OLEOPHOBIC EFFECT
- REDUCED DOWNTIME
- LESS INTERNAL WEAR
- HYDROPHOBIC EFFECT

NANO SYSTEM GREASE WS2

Nano System Grease WS2 is an affordable, super strong, multipurpose solution for a wide range of EP applications. Nano Grease WS2 is based on our proprietary WS2 formulated technology of super strong tungsten disulfide multilayered nano-fullerene like particles. Under Extreme Pressure conditions, the solid WS2 particles bond to the surface of the metal, lowering friction and wear while providing outstanding load-bearing capabilities.

EP properties, ASTM D2596



Nano Grease WS2 has proven quality and endurance in extreme pressure (EP) circumstances

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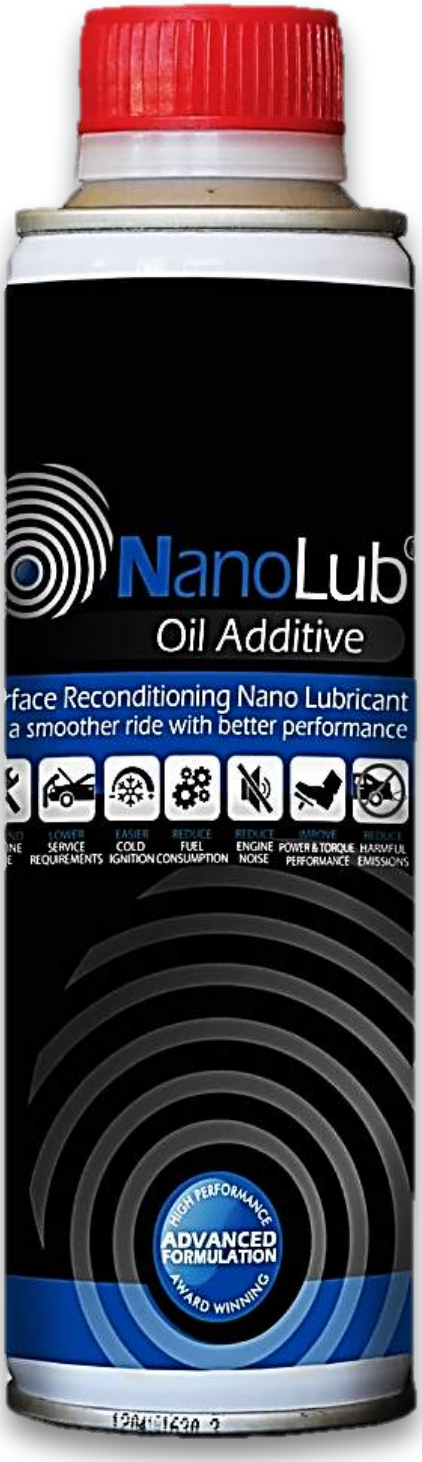
NANO LUB RC-X

Nano Lub Industrial Gear Oil is a new generation fully formulated oil based on our proprietary nano-sized inorganic fullerene-like tungsten disulfide (WS_2) particles engineered to provide outstanding load-bearing, anti-wear and ultra-low friction. Nano Lub is a blend of solid WS_2 nanoparticles and other high-quality multifunctional lubricant additives dispersed in a premium grade mineral oil designed for heavy industrial enclosed gear systems. Nano Lub can be used in other extreme gearing applications such as power plants, mining equipment, steel mills and cement plants replacing conventional gear lubricants.

Gearbox of a wind turbine



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NANO LUB RC-X

MAKING GRATE THINGS EVEN BETTER

GIFT OF SCIENCE

NANO LUB RC-X CONTAIN MULTILAYERED NANO FULLERENE-LIKE PARTICLES

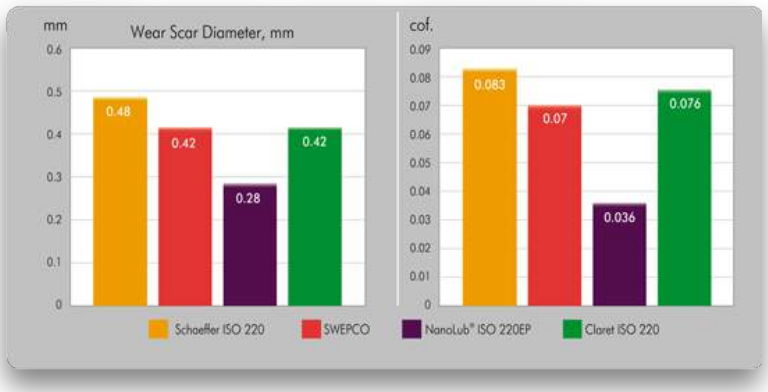
Coefficient of Friction

Wear Scar (mm) – 1 hr/40 kg/130° F ASTM D-4172

NanoLub® ISO-220EP - Industrial Gear Oil vs. MoS2 Based ISO 220 Gear Oils

Average Friction Coefficient

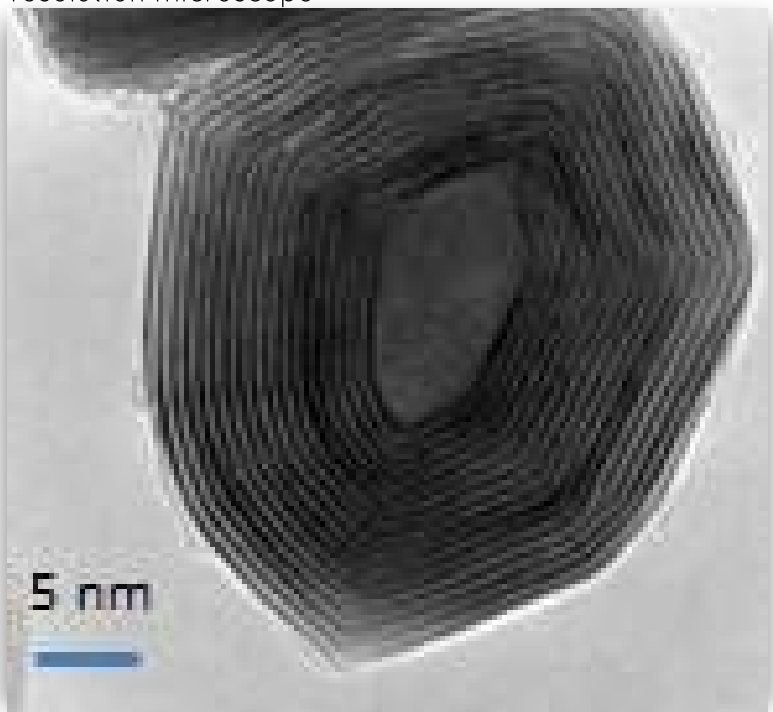
NanoLub® ISO-220EP - Industrial Gear Oil vs. MoS2 Based ISO 220 Gear Oils



Nano Lub RC-X is based on NIS' unique patented technology using solid tungsten disulfide (WS_2) multilayered nano fullerene-like particles. These unique multi-layer IF-WS_2 nano-spheres are well-known to show outstanding temperature (-270°C to 450°C), shock (5,076,000 PSI) and pressure (4,263,000 PSI) resistance and renders them to be versatile under extreme operating conditions including high and ultra-low temperatures, high pressure and high vacuum, high load, high rotating speed, high radiation and corrosion conditions.

Due to its size (50-200 nm) and morphology of WS_2 nanoparticles, they easily fill the asperities and irregular surface of the metals providing excellent load bearing and anti-wear properties. Under high loads (>1 GPa), the layers peels from the spheres forming a thin protective monolayer of WS_2 on the surface of the metal thereby reducing friction and wear between the metals.

Nano WS2 fulleren seen under high resolution microscope



DEVELOPMENT PROGRAM

INDUSTRIAL APPLIANCES

BEARINGS
CONVEYOR SYSTEMS
FLEET MANAGEMENT
GEARS AND GEAR BOXES
HEAVY MACHINERY
METAL FORMING
MINING
MOVING FREIGHT
OIL & GAS DRILLING
POWER GENERATION PLANTS
RAILROAD
SPACE & DEFENSE
STEEL MILLS
TRUCKS & BUSES
WIND TURBINES

BEARINGS

Bearings are an integral part of all machinery. The use of highly effective lubricants in Bearings is vital for their efficiency, as reducing Wear and Friction prevents overheating and premature failure of the bearing while allowing for continued and efficient operation under much higher temperatures, speeds and loads.

CONVEYOR SYSTEMS

Conveyor systems are imperative to many manufacturing processes. A poorly operating inefficient conveyor, especially one plagued with frequent breakdowns and short between service intervals, may have a drastic impact on manufacturing quality, efficiency, and cost.

That's why proper maintenance is imperative to ensure that conveyor systems perform at peak capacity. Trolley wheels and bearings require lubrication in order to reduce friction. The chain pull that the drive experiences can double if the bearings are poorly lubricated. This can cause the system to overload by either its mechanical or electrical overload protection.

Cost efficient? You'll have the proof!

If your vehicles could be running more profitable, wouldn't you want to know? When you combine our products with your existing fleet management software you will have all the data needed to know your team is riding responsibly.

SpeedUP nanotechnologies

NanoMaterials an NIS corporation

FLEET MENAGEMENT

Staying on the road longer.

When it comes to fleet maintenance and fuel management Nanotech's complete line of products has you covered. From our NEW Fully Formulated Grease line, engine oil additives and Fully Formulated Gear Oils, we can help keep you on the road longerwhile minimizing vehicle maintenance and considerably increasing your efficiency.

The difference is Nano.

Not only does our super strong and lubricious tungsten disulfide WS_2 multilayered nano-fullerene-like particles (IF-WS_2) nano-spheres lower friction, heat and reduce mechanical wear, it also releases it's tribofilms (layers) on surfaces to smooth and repair them which will extend the mechanical efficiency of the apparatus. To put it simply, Nanotech products are engineered stronger from the particle up.

Defined Result:

- Optimized Engine and Gear
- Performance Extended Vehicle
- Life Fewer Service
- Requirements Decreased Fuel
- Consumption Reduced
- Operation Costs

HEAVY MACHINERY

Heavy Machinery is specially designed for mechanically abusive construction tasks and heavy earthwork operations. The extreme loads and almost nonstop operation, results in increased wear and tear of vital machinery elements, such as engine, transmission and other moving parts. Over time, this results in significantly lower vehicle performance, breakdowns, costly service requirements and lower fuel efficiency.

The Result:

- Significant Reduction in Wear and Friction
- Extended Application Life
- Optimized Performance
- Lower Service Requirements
- Reduced Energy Consumption
- Improved Operation Costs

Nano Lub Heavy Duty Anti-Wear & Anti Friction lubricants are based on a unique patented technology of proprietary super strong tungsten disulfide (WS_2) multilayered nano fullerene-like particles.

These unique multi-layer IF-WS_2 nano-spheres lower friction and reduce mechanical wear.

At the same time, contact pressure causes nano-spheres to release tribofilms that attach to surface asperities and smooth them, thereby extending mechanical efficiency and apparatus life.

GEARS AND GEAR BOXES

The Result:

- Extended Gear Life Lower
- Service Requirements
- Reduce Energy
- Consumption Improve
- Power & Torque
- Performance

METAL FORMING

Metal Forming equipment operate under conditions of Extreme Pressure and Friction, causing a significant amount of wear to accumulate over time. This often results in noticeable decline in machine efficiency, excessive energy consumption and frequent breakdowns.

Another issue is the inability to use wet lubrication in complicated manufacturing processes.

This is a problem of the past with the growth of nanotechnology application use in industrial sector.

MINING

Various machinery applications are used in the mining industry to bore through rock, break up and remove these rocks, as well as many other very difficult tasks. Most of these machines work under extremely harsh conditions, resulting in significant equipment wear, which in turn causes a reduction in efficiency, breakdowns and higher maintenance costs over time.

OIL AND GAS DRILLING

The heavy specialized machinery employed by the Oil & Gas Drilling and Exploration Industries, for both onshore and offshore projects, work under extreme pressure conditions, enduring high loads and temperatures. Inevitably, continuous friction causes wear of essential mechanical parts, leading to decline in machine performance and reliability, delay in operations, shorter service cycles and higher maintenance requirements. This is especially critical for an industry operating under high operational costs.

Nano Anti-Wear & Anti Friction lubricants are based on a unique patented technology of proprietary super strong tungsten disulfide (WS_2) multilayered nano fullerene-like particles. These unique multi-layer WS_2 nano-spheres lower friction and heat, thereby reducing mechanical wear. At the same time, contact pressure causes nano-spheres to release tribofilms that attach to surface asperities and smooth them, thereby extending mechanical efficiency and apparatus life. Nano product range includes Extreme Pressure Oil and Grease AW/AF additives as well as AW/AF Dry Coating, capable of significantly improving the performance of Extreme Pressure applications used in the Oil & Gas drilling industries.

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RAILROAD

The use of high quality lubricants in railway systems is essential for maintenance, reliability and safety. Hundreds of different mechanical applications are utilized in this complex industry, many of them are subjected to constant wear and friction, while operating under harsh conditions of extreme pressure, high loads and temperatures, leading to equipment wear, loss of efficiency, breakdowns and short maintenance cycles.

MOVING FREIGHT

Freight is moved from city to city, coast to coast, or across the oceans. Trucks, boats and planes of all sizes and types work round the clock getting the job done.

Different mechanical applications, essential for their proper operation keep these machines moving. Some of these include: engine and gear systems, conveyors, chains, cranes, compressors and other mechanical parts.

Most of these operate under harsh, extreme pressure conditions, with constant friction and wear causing loss of efficiency, short maintenance cycles and equipment breakdowns.

The Result:

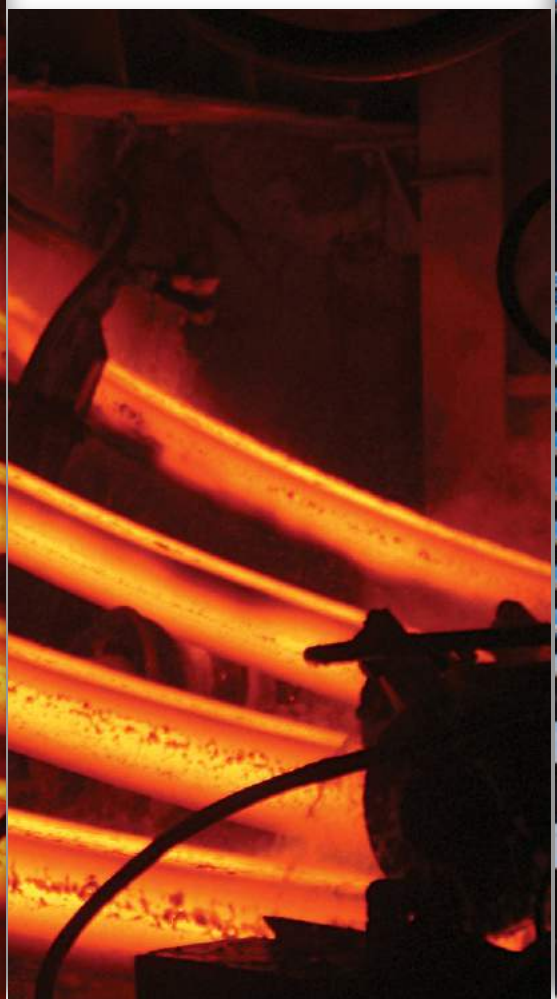
- Significant Reduction in Wear and Friction
- Optimized Performance
- Extended Application Life
- Fewer Breakdowns Fewer
- Service Requirements
- Improved Energy Efficiency

POWER GENERATION PLANTS

Mechanical equipment used in the power generation industry includes Diesel Generators, Turbines, Gears, Chains, Wire Ropes and other mechanical equipment. All of these are required to operate, almost nonstop, under Extreme Pressure conditions. Their mechanical parts are subjected to constant friction resulting in wear, loss of operational efficiency, short maintenance intervals and eventual breakdowns.

STEEL MILLS

Machinery equipment utilized in the Steel Industry operates under harsh conditions of heavy loads and high temperatures. This, in addition to almost nonstop operation and constant friction, results in significant wear and tear in mechanical parts.



TRUCK & BUSES

Millions of trucks and buses worldwide carry heavy loads and passengers through dense city traffic and cross country excursions every day. The engines and drive train in trucks and buses are especially exposed to wear and tear. This is due to constant operation, accumulated mileage and stop and go traffic. The result is lower vehicle performance over time, frequent breakdowns with costly service requirements and lower fuel efficiency.

WIND TURBINES

Wind turbines are subjected to constant friction and wear while operating under extreme pressure conditions of heavy loads and varying temperatures. This causes significant maintenance problems with declining productivity, worsened performance, frequent breakdowns and shortened machinery life.

Nano Anti-Wear & Anti Friction lubricants are based on a unique patented technology of proprietary super strong tungsten disulfide (WS_2) multilayered nano fullerene-like particles. These unique multi-layer WS_2 nano-spheres lower friction and heat, thereby reducing mechanical wear. At the same time, contact pressure causes nano-spheres to release tribofilms that attach to surface asperities and smooth them, thereby extending mechanical efficiency and apparatus life.

Nano product range includes Extreme Pressure Oil and Grease AW/AF additives of various types, as well as AW/AF Dry Coating, capable of significantly improving the performance of Extreme Pressure like turbines and other mechanical systems used in Wind Turbines.

The Result:

- Significant Reduction in Wear and Friction
- Optimized Performance
- Extended Application Life
- Fewer Breakdowns
- Fewer Service Requirements
- Improved Energy Efficiency
- Improved Operation Costs

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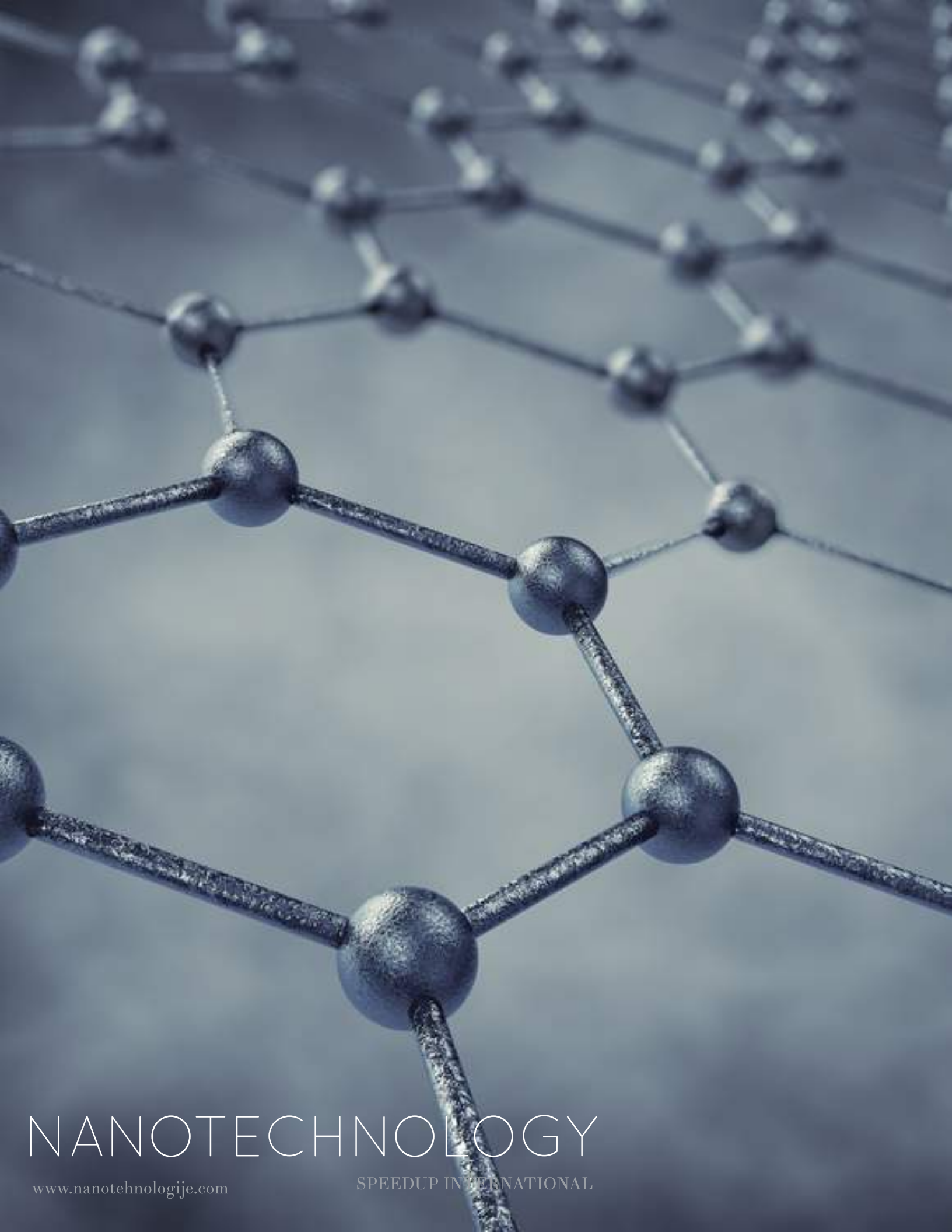
SPACE AND DEFENSE

NIS's proprietary technology has great potential for different applications in the Space and Defense sector, as already recognized by leading industry players and customers.

Our proprietary multi-layered, spherical and tubular shapes of tungsten disulfide (WS_2) have notably high pressure, impact and heat resistances. They have low toxicity and high metal bonding capacity. These properties, in appropriate formulations, can facilitate the creation of "super performing" lubricants, coatings, and polymer composites. These breakthrough inorganic, multi-layered nano-structures are also particularly promising for applications in thin surface-coatings for friction and wear protection.

In addition, NIS's inorganic fullerenes-like particles and nanotubes can be applied for reinforcing bulk polymers and adhesives (thermoplastics and thermosets) for various applications. Such nanoparticles will enhance the matrix's impact absorption, strength and elasticity, as well as its resistance to friction and wear. Our inorganic fullerene-like particles and nanotubes can also be incorporated with non-polymeric media, thus forming metal and ceramic matrix composites.



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