



NANOIKPTM
industrial cleaner

OIL AND REFINERY INDUSTRY

NanoIKP™

Product of Biomolecular Nanotechnology.

No other cleaners available on the market have the combined unique characteristics contained in NanoIKP products. All are **non-toxic, biodegradable**, highly effective surfactants that are safe for both land and marine environment. They can be used freely without fear of contamination or toxic impact on soil or water.

Industrial, Manufacturing and Mechanical facilities often utilize chemicals that pose both long- and short-term health risks to their employees. The use of toxic cleaners and degreasers in Industrial settings pose an inherent risk to the very people they are intending to assist. Research shows that low-level exposure of chlorine bleach produces measurable unhealthy effects and that long-term, low-level exposures can cause cumulative physical damage. Exposure doesn't have to be substantial to create adverse health effects. Choosing the least toxic product to begin with is the first step toward prevention of possible short-term harm and almost certain long-term risk. Exposure of toxic chemicals can result in health problems such as asthma, liver or kidney damage and even cancer.

NanoIKP Industrial Cleaners competitively priced, yielding superior results, are now available as an ecofriendly addition to the Oil and Refinery Industry.

NanoIKP™ is the Cleaner and Degreaser of the future... Available TODAY!

NanoIKP™ is an unique, proprietary blend of sustainable, plant-derived ingredients that are:

- All-Natural ✓
- Non-Toxic ✓
- Biodegradable ✓
- Non-Fuming ✓
- Non-Caustic ✓
- Non-Flammable ✓
- Non-Hazardous ✓



NanoIKP™ is designed specifically for the Oil and Refinery Industry

Our products are comprised of:



NANOIKP™
industrial cleaner

- ✓ **Rig Wash**
- ✓ **Well Bore Cleaner**
- ✓ **Heavy Duty Degreaser**
- ✓ **Machine & Engine Wash**
- ✓ **Soil Reconditioner**
- ✓ **Ship & Tanker Wash**

NanoIKP™

Oil Industry Applications

Well Bore Cleaner: As an oil well depletes, its production is slowed by sand, water emulsions, waxes and damage done by acid and other stimulation treatments. The ideal flow is possible once the sediment, wax, emulsions are dissolved by NanoIKP Industrial Cleaner. The flow is improved substantially. The surface tensions in the formation are made ideal for increased flow and improved oil recovery. If the additive is then squeezed back into the formation, it will dissolve emulsions and improve the flow of produced oil even further.

Field Testing: Well ID: Xxxxx 28

Production: ½ bbl./day

Treatment: 5 gals/10 gals water
Circulate 24 hours
Flush hole with fluid

Results: 8-10 bbl./day

Well ID: Xxx 20

½ bbl./day

5 gals/10 gals. Water
Circulate 24 hours
Flush hole with fluid

7-11 bbl./day

NanoIKP™

Oil Industry Applications

OIL WELL TESTING

Tested in Nebraska

Wells were 4500 Feet Deep - Well set up for recirculation
Put in product – hose run to recirculate – 28-48 hours

Use Concentrate

Fissures crust over in well blocking oil flow NanoIKP Industrial Cleaner
breaks crust and enables oil to flow Also flushes paraffin in well

Use for Clean up on surface as well

Spray on dirt, breaks up hydrocarbons in ground

Puts microbes into soil

Use liberal applications to start

50-200 gallons down well to get into well

Worked every other time – activated one of every two wells

NanoIKP™

Oil Industry Applications

Rig wash: As drilling begins to encroach into environmentally sensitive areas, more attention is being paid to products used on drilling locations. The issues may run from Federal and State disposal issues, to local disposal wells and illegally dropped waste and contaminated water.

There are very limited sources to reclaim or recycle liquid waste, and solid waste disposal is an expensive cost. Rig wash is a necessary part of the drilling operation, not just for safety of the rig floor workers but also for the containment and sustaining the environment around the drill site. As the rig wash combines with the drilling fluid, it breaks down the cuttings, oil and bacteria in the water. It will not let the oil portion recoat the drill pipe, rig floor and work areas.

The NanoIKP Industrial Cleaner colloidal technology essentially breaks down the solids and oil and biodegrades the solids into a biomass.

NanoIKP™

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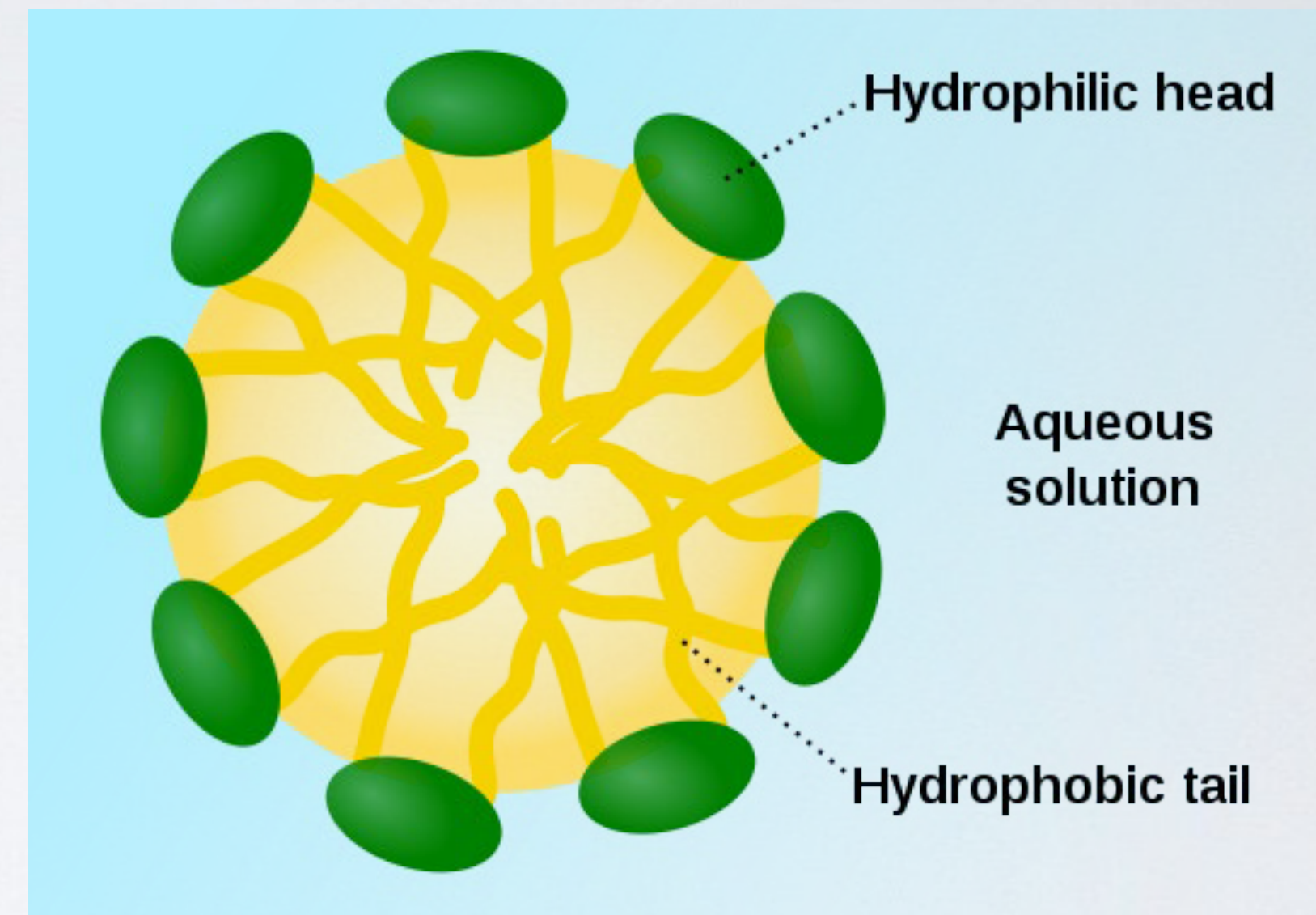
A unique combination of all-natural ingredients mixed using a proprietary process.

A specialized chemical reaction produces super surface-active *amphiphilic* molecules (can mix with both oil and water)

They have a water-attractive (hydrophilic) head and an oil-attractive (hydrophobic) tail.

They appear structurally similar to traditional soap/detergent molecules.

Before use they form micellar nanoparticles with the heads outside and tails inside.



What makes NanoIKP™ work so much better than conventional soaps and detergents?

SUPER SURFACE-ACTIVITY

- Compared to traditional surfactants, **NanoIKP™** has significantly higher surface-activity due to its unique natural enzymes.
- When **NanoIKP™** is applied to grease and oil contaminants, its micellar nanoparticles automatically dissociate.
- The tails immediately attract oil/grease molecules and leave the water-attractive head outside.
- The heads bond with and are completely surrounded by water molecules.
- When flushed with water, the trapped oil and grease molecules are completely dissolved and removed as a biodegradable residue.

NanoIKP™

HOW IT WORKS

NanoIKP Industrial Cleaner is manufactured using current biomolecular **nanotechnology**.

Nano---technology creates extremely small particles made from natural plant oils, plants oils and extractions. By creating a colloidal micelle, the characteristics are changed so that the tiny spherical particles are both hydrophobic and hydrophilic chemical properties. They form mild solutions that dissolve heavy grease, oil and other hydrocarbons. The dissolved oil becomes biodegradable and breaks down into nitrate, dissolved oxygen, carbon dioxide and water.

This powerful, totally non--toxic surfactant is a unique combination of natural ingredients formulated using a proprietary process. Our proprietary and unique formula results in a specialized chemical reaction that produces super surface--active *amphiphilic* molecules (can mix with both oil and water). These molecules have a water--attractive (hydrophilic) head and an oil--attractive (hydrophobic) tail.

NanoIKP™

HOW IT WORKS

They appear structurally similar to conventional soap, detergent and surfactant molecules but are many times smaller than them. Prior to actual application they form micellar nanoparticles with the heads outside and tails inside. These nanoparticles form mild solutions that dissolve heavy grease, oil and other hydrocarbons. The dissolved oil becomes biodegradable and breaks down into nitrate, dissolved oxygen, carbon dioxide and water.

Because of their extremely small size they work much more effectively and efficiently than conventional soaps, detergents and surfactants. The average diameter of has been measured to be approximately **4 nanometers**.

The micelle size of NanoIKP surfactants was obtained by Dynamic Light Scattering (DLS) Technique. DLS measurements were performed on a Proton Correlation Spectrometer with a BI9000 AT Digital Correlator (Brookhaven Instruments) equipped with a Compass 315M---150 Laser (Coherent Technologies), which provides a green light source ($\lambda=532\text{nm}$).

NanoIKP™

HOW IT WORKS

Data obtained from DLS can be interpreted in different ways using different mathematic models. The figure below, which uses a Cumulant model, is the easiest and most common interpretation of the measurement.

	Gamma (s^{-1})	Diff. Coef. ($cm^2 s^{-1}$)	Eff. Diam. (nm)	Poly	Skew	Kurtosis
Linear:	4.808e+04	9.685e-07	5.1			
Quadratic:	6.063e+04	1.221e-06	4.0	0.187		
Cubic:	6.573e+04	1.324e-06	3.7	0.323	0.30	
Quartic:	6.957e+04	1.401e-06	3.5	0.453	0.62	3.20

NanoIKP™

HOW IT WORKS

Gamma is the average decay rate, and Diff. Coef. is the Diffusion Coefficient. Both of these values characterize the moving speed of the micelles in solution, i.e., Brownian movement or thermal diffusion.

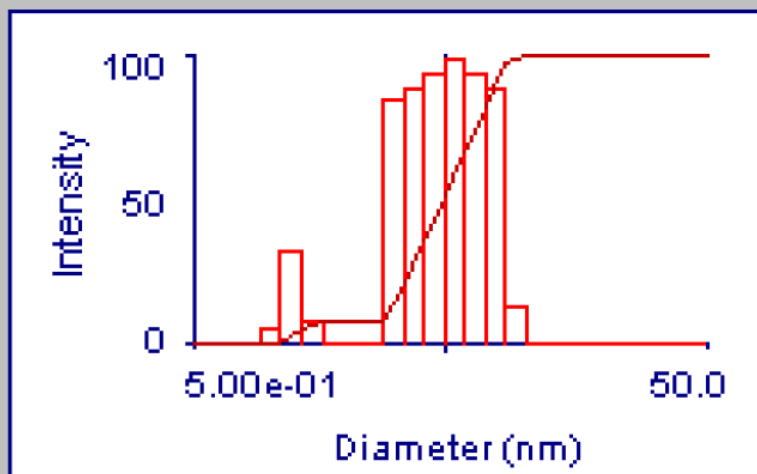
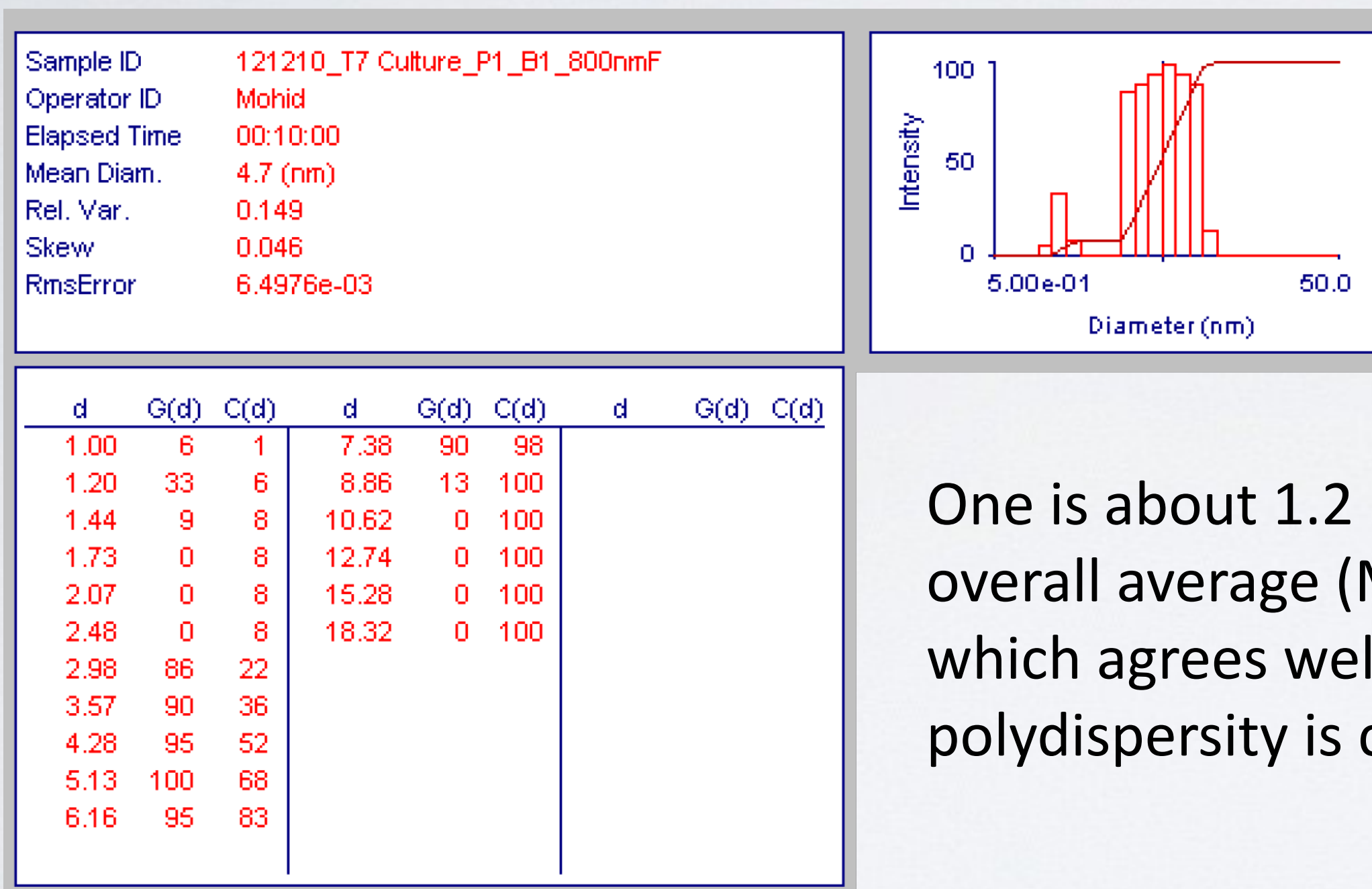
The larger the micelle, the lower the diffusion coefficient. The micelle size can be solved from the Cumulant model with four different orders of approximation. Each order provides a slightly different micelle size (Eff. Diam) in nanometer (nm) units, which is the DIAMETER of the micelles.

Since the quadratic (4.0) or cubic (3.7) results are typically used, that result indicates that the NanoIKP Industrial Cleaner micelles are approximately 4 nm with polydispersity (Poly) index of about 0.2 to 0.3.

NanoIKP™

HOW IT WORKS

The following two figures are different interpretation of the measurement with more complicated models. CONTIN mode (below) is better when there is a polydispersed system.



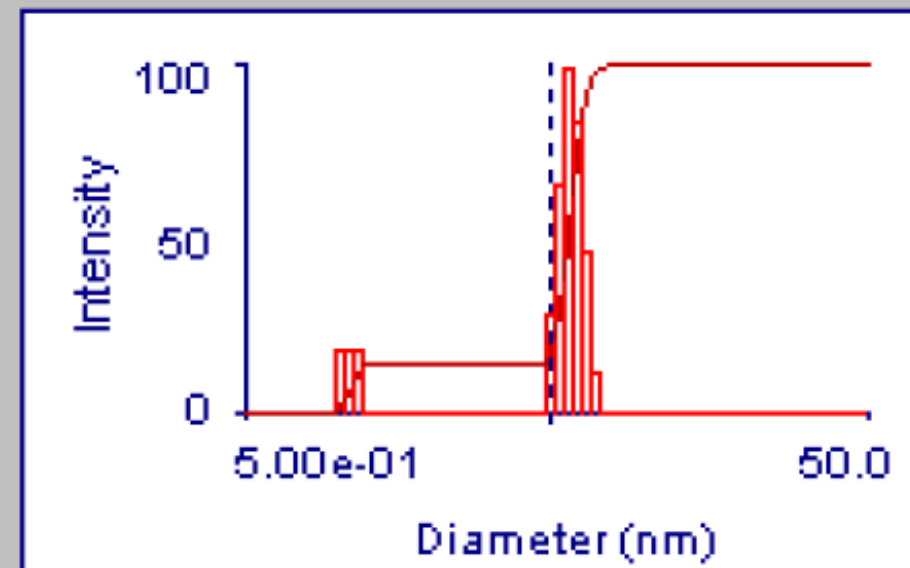
This chart indicates that NanoIKP surfactants micelles have two populations:

One is about 1.2 nm and the other one is around 5nm, so the overall average (Mean Diam.) size from this model is 4.7 nm, which agrees well with the Cumulant result when polydispersity is considered.

NanoIKP™

HOW IT WORKS

Sample ID 121210_T7 Culture_P1_B1_800nmF
 Operator ID Mohid
 Elapsed Time 00:10:00
 Mean Diam. 4.9 (nm)
 Rel. Var. 0.110
 Skew -1.741
 RmsError 6.1083e-03



NNLS is another model to interpret the measurement, which gives a quite close value of 4.9nm.

d	G(d)	C(d)	d	G(d)	C(d)	d	G(d)	C(d)
1.00	19	5	2.04	0	14	4.15	0	14
1.07	19	10	2.17	0	14	4.43	0	14
1.14	19	14	2.32	0	14	4.73	30	22
1.21	0	14	2.48	0	14	5.05	66	39
1.30	0	14	2.64	0	14	5.38	100	64
1.38	0	14	2.82	0	14	5.74	85	85
1.47	0	14	3.01	0	14	6.13	47	97
1.57	0	14	3.21	0	14	6.54	13	100
1.68	0	14	3.42	0	14	6.97	0	100
1.79	0	14	3.65	0	14	7.44	0	100
1.91	0	14	3.89	0	14	7.94	0	100

It is important to note that all of these results represent an average of statistical results, so the approximate level of 4f 5 nm in all these results are sufficiently valid for all practical purposes.

NanoIKP™

HOW IT WORKS

A 4-nanometer diameter micelle has resulted in an unsurpassed level of dispersion and biodegradability of nonpolar hydrocarbon molecules in water due to its powerful *super surface activity*.

Compared to conventional surfactants, NanoIKP Industrial Cleaner has significantly higher surface activity due to its unique natural enzymes. When NanoIKP Industrial Cleaner is applied to grease and oil contaminants, its micellar nanoparticles automatically dissociate. The tails immediately attract oil/grease molecules and leave the water attractive head outside. The heads bond with and are completely surrounded by water molecules.

When flushed with water, the trapped oil and grease molecules are completely dissolved and removed as a biodegradable residue. Due to their submicroscopic size, oil and grease particles are broken down into particles much smaller and dispersible than with other surfactants and thus are much more readily biodegradable under natural conditions.

NanoIKP™ micellar nanoparticles:

1

Accelerate the decomposition process of organic compounds (biodegradability).

2

Have hundreds of applications across multiple and diverse industries.

3

Penetrate and rupture cell walls of bacteria, viruses and mold spores (e.g. E. coli and Salmonella bacteria).

Of any competitive cleaner on the market, only **NanoIKP™** can proudly fulfill **ALL FIVE** of these claims:

- ✓ 100% Non-toxic
- ✓ Readily Biodegradable
- ✓ Industrial Strength
- ✓ Multi-Purpose
- ✓ Cost Effective

The Crucial Dilemma in the Oil & Refinery Industry

- Most conventional cleaners work fine but are toxic and are not biodegradable.
- Many “Green” cleaners are natural and biodegradable but not nontoxic (human friendly).
- Some “Green” cleaners are nontoxic but are not very effective.
- Most cleaners have single or limited applications.
- Diluted to normal strength, **NanoIKP™** is competitively priced, costing pennies per ounce.

The Crucial Dilemma in the Oil & Refinery Industry

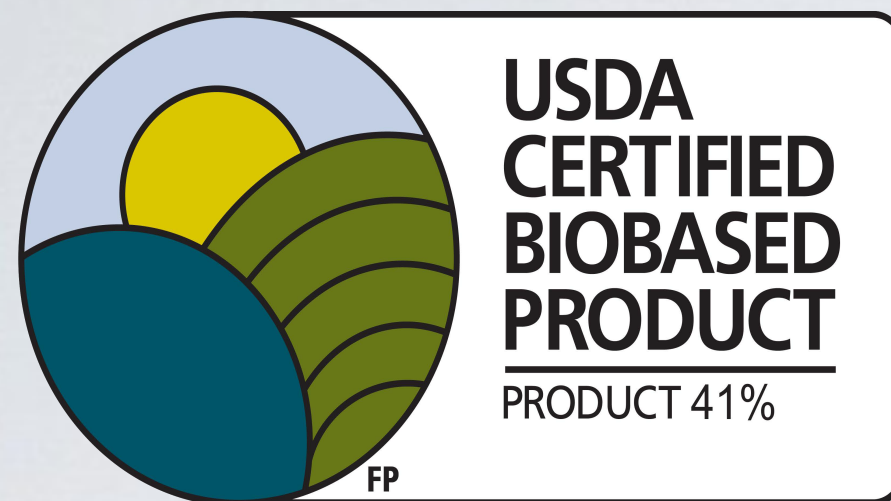
	Conventional Toxic Cleaners	Eco-Friendly “Green” Cleaners	NANOIKP
100% Non-Toxic	NO	Sometimes	YES
Readily Biodegradable	NO	YES	YES
Industrial Strength	YES	NO	YES
Multi-Purpose	Sometimes	Sometimes	YES
Cost Effective	Sometimes	Sometimes	YES

What makes NanoIKP™ the Greenest product on the planet?



- Sourced from 100% all-natural plant-derived, sustainable raw ingredients
- Energy- and resource-efficient manufacturing process with low environmental impact
- Resource-efficient concentrate form, diluted with water to desired strength
- One formula replaces nearly all other cleaning products
- Decontaminates toxic chemicals, kills germs and repels insects
- Runoff wastewater continues to decontaminate drains, sewers and waterways

How safe is NanoIKP™?



- ✓ **NanoIKP™** contains NO: Chlorine; Ammonia; VOCs; SVOCs; POMs; Biocides; Pyrethroids; NPEs; PCBs; PAHs; Organophosphates; Phthalates. It is as safe as drinkable water.
- ✓ All **NanoIKP™** ingredients meet criteria for the US EPA Design for the Environment Program (DfE)/Safer Detergents Stewardship Initiative (SDSI)
- ✓ None of the ingredients appears on the California Proposition 65 or Canadian CEPA-DSL lists
- ✓ Certified by the USDA BioPreferred Program
- ✓ Absolutely nontoxic and harmless to humans and animals, **10 times safer** to aquatic life than conventional detergents.
- ✓ Allergic and chemically sensitive people can use it with complete confidence and safety.



NanoIKP™ is available in:

55 gallon drums



NANOIKP™
industrial cleaner

275 gallon IBC totes





Products of Biomolecular Nanotechnology.

NANOLAVA™ Products of Biomolecular Nanotechnology.

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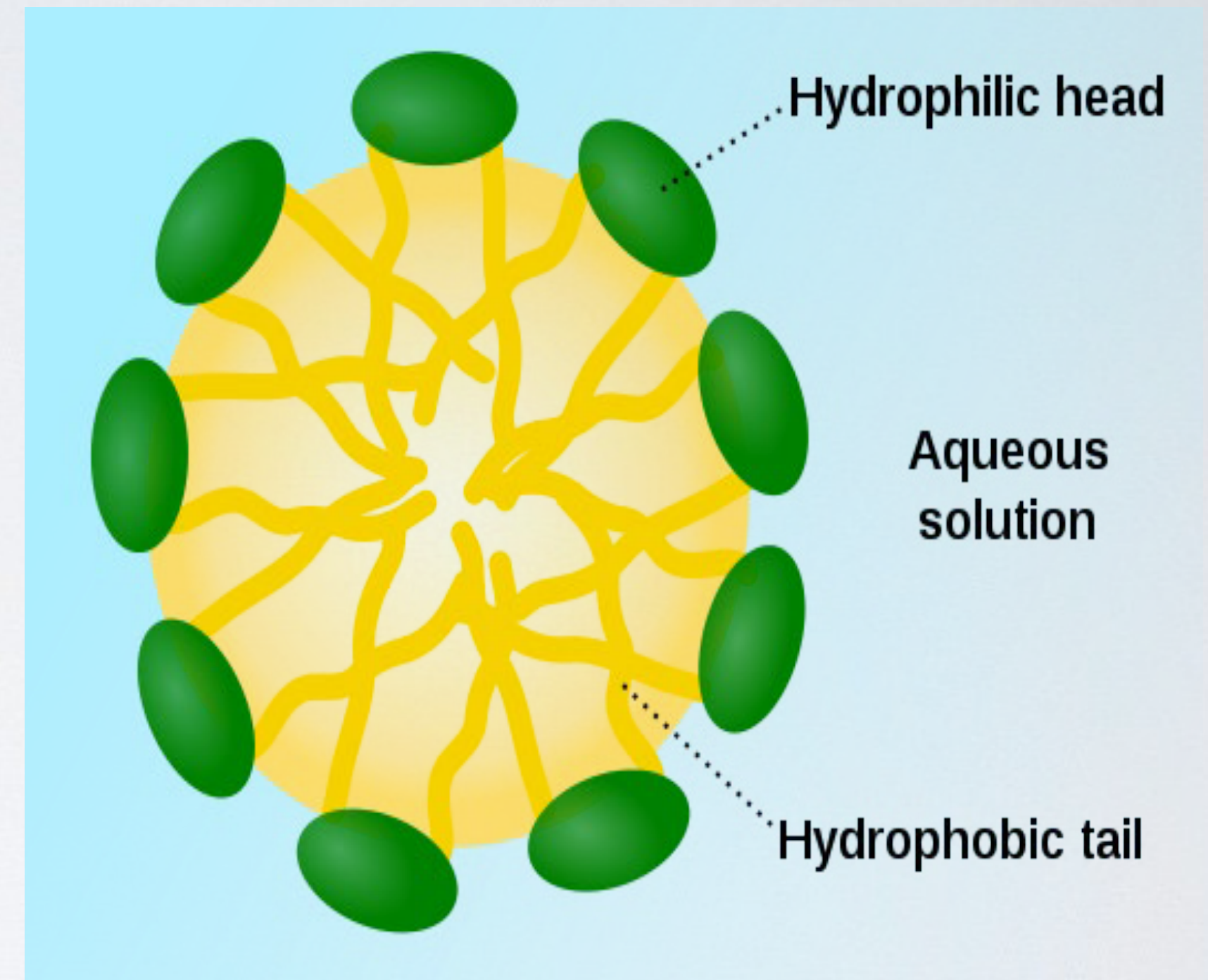
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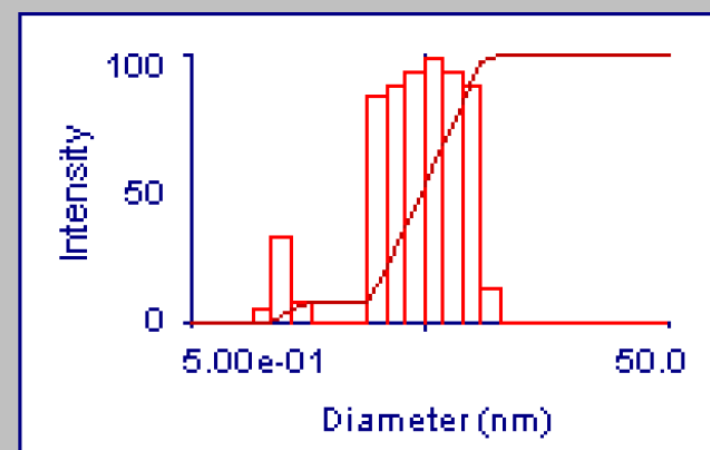
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Sample ID	121210_T7 Culture_P1_B1_800nmF
Operator ID	Mohid
Elapsed Time	00:10:00
Mean Diam.	4.7 (nm)
Rel. Var.	0.149
Skew	0.046
RmsError	6.4976e-03



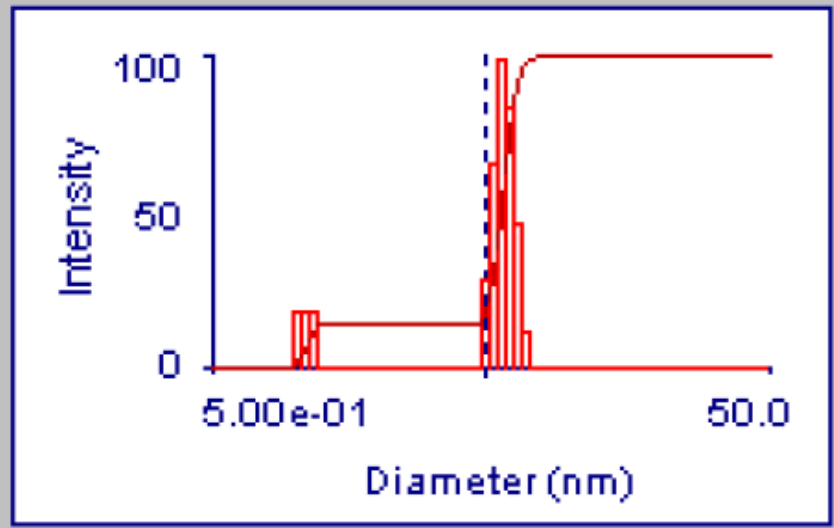
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d	G(d)	C(d)	d	G(d)	C(d)	d	G(d)	C(d)
1.00	6	1	7.38	90	98			
1.20	33	6	8.86	13	100			
1.44	9	8	10.62	0	100			
1.73	0	8	12.74	0	100			
2.07	0	8	15.28	0	100			
2.48	0	8	18.32	0	100			
2.98	86	22						
3.57	90	36						
4.28	95	52						
5.13	100	68						
6.16	95	83						

One is about 1.2 nm and the other one is around 5nm, so the overall average (Mean Diam.) size from this model is 4.7 nm, which agrees well with the Cumulant result when polydispersity is considered.

NANOLAVA™ Products of Biomolecular Nanotechnology.

Sample ID	121210_T7 Culture_P1_B1_800nmF
Operator ID	Mohid
Elapsed Time	00:10:00
Mean Diam.	4.9 (nm)
Rel. Var.	0.110
Skew	-1.741
RmsError	6.1083e-03



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1.30	0	14	2.64	0	14	5.38	100	64
1.38	0	14	2.82	0	14	5.74	85	85
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NANOLAVA™ Products of Biomolecular Nanotechnology.

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Compared to conventional surfactants, **NANOLAVA™** products have significantly higher surface activity due to their unique natural enzymes. When **NANOLAVA™** Cleaner is applied to grease and oil contaminants, its micellar nanoparticles automatically dissociate. The tails immediately attract oil/grease molecules and leave the water attractive head outside. The heads bond with and are completely surrounded by water molecules.

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Accelerate the decomposition process of organic compounds (biodegradability).

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Have hundreds of applications across multiple and diverse industries.

3

Penetrate and rupture cell walls of bacteria, viruses and mold spores (e.g. E. coli and Salmonella bacteria).

NANOLAVA™ INGREDIENTS:

All-Natural ingredients including: Water, Organic Alcohol and Oils, Botanic Enzymes and Minerals; Biobased Fatty Acids* & Sodium Bicarbonate.

How safe are NANOLAVA™ products?

NANOLAVA™ products are made with natural, organic and biobased* ingredients (*as certified by the USDA BioPreferred Program)

NANOLAVA™ products contain NO: Chlorine; Ammonia; VOCs; SVOCs; POMs; Biocides; Pyrethroids; NPEs; PCBs; PAHs; Organophosphates; Phthalates. They are as safe as drinkable water!

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Absolutely nontoxic and harmless to humans and animals, 10 times safer to aquatic life than conventional detergents.

Allergic and chemically sensitive people can use our products with complete confidence and safety.



What makes NANOLAVA™ the Greenest products on the planet?*

1. Sourced from 100% all-natural plant derived, sustainable raw ingredients. **NANOLAVA™** products are a proprietary, Nano-technology/Colloidal Micelle Soap Formula made from Natural ingredients including: Water, Organic Alcohol and Oils, Botanic Enzymes and Minerals; & Biobased Fatty Acids*; Sodium Bicarbonate.
2. **NANOLAVA™** products are Eco-friendly, biodegradable, easy to use and safe cleaning solutions that will not harm the environment, humans, animals or plants.
3. Energy and resource-efficient manufacturing process with low environmental impact. Resource-efficient concentrate form, diluted with water to desired strength.
4. **NANOLAVA™** formulas replace nearly all other cleaning, sanitizing and disinfection products.
5. Decontaminates toxic chemicals and kills germs, viruses, bacteria, pathogens, fungus, mold & mildew.
6. Runoff wastewater helps decontaminate drains, sewers and waterways.



	Conventional Cleaners	Eco-Friendly “Green” Cleaners	Products
100% Non-Toxic	NO	Sometimes	YES
Readily Biodegradable	NO	YES	YES
Industrial Strength	YES	NO	YES
Rinseless	NO	NO	YES
Multi-Purpose	Sometimes	Sometimes	YES
Cost Effective	Sometimes	Sometimes	YES



OUR MISSION

NANOLAVA™ is manufactured in the United States of America.

NANOLAVA™ is dedicated to improving quality of life and health by making high performance, non-toxic cleaning solutions.

NANOLAVA™ makes products that are 100% safe and effective, offering an alternative to the growing number of harmful chemicals in other cleaning, sanitizing and disinfecting products, on the market today.

OUR COMMITMENT

1. To provide safer, healthier environments for homes, businesses, healthcare facilities, government and to the general public overall.
2. To reduce or eliminate toxic products that pollute our daily lives by providing consumers with superior-quality toxin-free alternatives.
3. To improve the quality of life and health for our families, our communities and all creatures in our environment.
4. To help make our entire Planet Clean and Green for our collective future.



MADE IN USA

NanoIKP – Our Mission



NANOIKP™
industrial cleaner

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THANK YOU!