

NovaSOL[®] Curcumin



Unique technology for enhanced bioavailability



PASSION FOR TASTE AND HEALTH



Curcuma

- Curcumin (found in the roots of *Curcuma Longa*) gives the spice Curry it's golden color
- It is commonly used not only in health care but also as preservative and colorant
- Tumeric/Curcumin has a long history of use in Ayurvedic medicine as a treatment for various inflammatory conditions. These include rheumatism, skin disease, liver disease and various forms of gastro-intestinal diseases.
- An extensive amount of scientific research show the beneficial activities of curcumin as a result from its antioxidant and anti-inflammatory properties. Publications related to the effects of curcumin relate to many conditions including:
Cancer, Alzheimer, Cholesterol, Arthritis,
Gastro-intestinal disorders and others.
- Curcumin is nearly insoluble in water and known to have a very low bioavailability. Effectivity has only been proven with very high dosages (8-12g) which are difficult to meet in market products.





NovaSOL Technology

1. Raw material

→ Broad spectrum

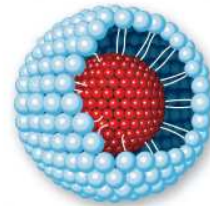


Liquids
Powders



2. Processing

→ Micelle structure



Solubilization



3. Core features

→ Ultrastable colloids



Temperature stability
Mechanical stability
pH stability
Ready to use



4. Application solutions

→ Proven benefits

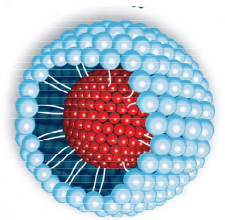
- Higher stability of actives
- Water & Fat Solubility
- Clear Appearance
- Ultrafine distribution
- Higher efficacy
- Superior Bioavailability
- No chemical modification or nanoparticles
- Ultrafine distribution





Comparison

Emulsions / Liposomes vs. Solubilisates

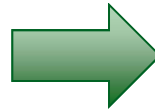


	Conventional emulsions, micro- and nano-emulsions	Aquanova solubilisates with micelle characteristics
Visual	Water insoluble (turbid to opaque in aqueous media)	Completely water-soluble and fully transparent
Stability	Low stability (thermal, physical, pH)	High stability (thermal, physical, pH)
Characteristics with oral application (nutrition)	low and slow resorption (with aid of bile acids)	higher and faster intestinal resorption (without bile acids participating)
Characteristics with dermal application (skin care)	low and slow penetration	higher and faster penetration
Processing capability for final products	Sometimes difficult incorporation into final products	optimum and direct incorporation into final products, no matrix design necessary
Loading capacity for outer diameter=30nm	Liposomes: 5600 nm ³	Micelles: 9200 nm ³



Bioavailability

- Dissolution analysis in aqueous solution (temperature 37° Celsius, pH-value 1,1)



Not fully solved -
phase separation

Fully, clear solution with
NovaSOL® Curcumin Licaps

- Superior bioavailability proven in Human clinical trial
 - Oral dose 500 mg Curcumin
 - Native vs Micronisate vs NovaSOL curcumin
 - 24 subjects
 - Increased bioavailability: 185x (AUC, 24h)
453x (Cmax)
 - Published in the American Journal of Clinical Nutrition (Oct. 2013)
- Conclusion:
1 g of NovaSOL curcumin is bioequivalent to 180 gr of standard curcumin extract



Overview

- Next generation liquid curcumin formula (solubilisate)
- Micelle structure similar to nature
- Fully water and fat soluble
- Very high bioavailability and fast absorption
- Human clinical trial published in AJCN (Oct. 2013)
- Unique Branded technology, Patent protected
- Pharma GMP quality
- Kosher (Halal on request)
- Dosage of 670 mg is bioequivalent to approx. 8 gr of standard extract
- Available as bulk solubilisate or capsules

THANK YOU



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