



What I saw,
What I did,
What happened... 😊



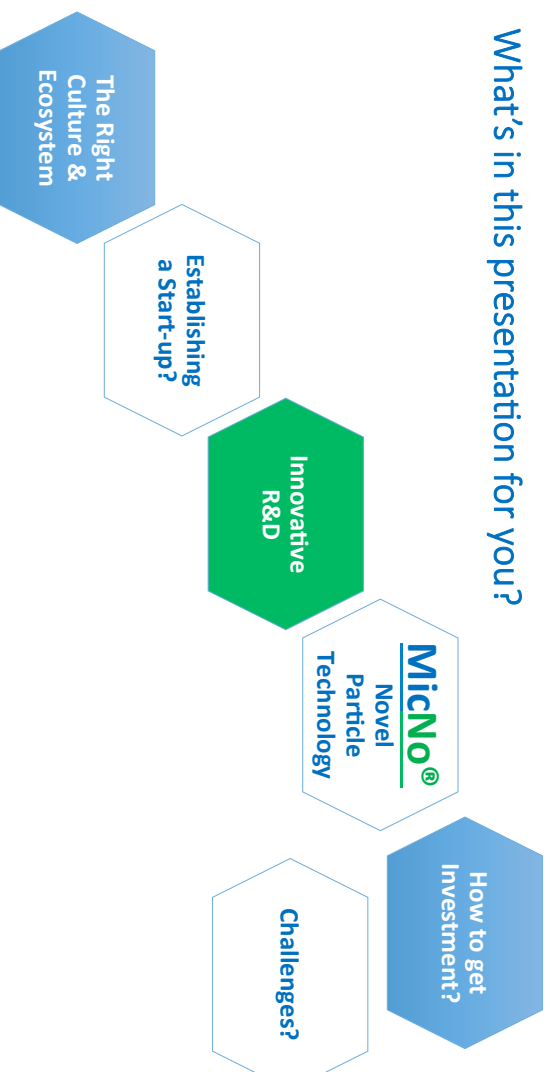
Prof. Dr. Ender Suvaci
www.enteknomaterials.com



USIMP'18, Istanbul
© Entekno Materials, Inc., 2018



What's in this presentation for you?



Open Innovation at Ceramic Research Centre in 2002

- Prof. Drs. Ersan Putun and Ferhat Kara
- Pool projects to solve the mutual problems of the member companies
- Using scientific knowledge to solve industrial problems.

Can I do it?



SAM

SERAMİK ARAŞTIRMA MERKEZİ





Understanding University-Industry Relations in Germany

Feb. 2004-Sept. 2005

- Visited universities, research centers and companies and give seminars
- Observed Good Practice examples of university-industry relations
- Technological Cooperation with Siemens AG



ENTEKNO (2008) www.enteknomaterials.com

To be one of the globally leading specialty particulate materials manufacturers which serve for sustainable growth.



ENTEKNO

Entekno®



Respectful to the World

Since February 25th 2008

© Entekno Materials, Inc., 2018



Who is going to run the company?

you

Who is going to develop new
innovative products?



Together Everyone Achieves More*



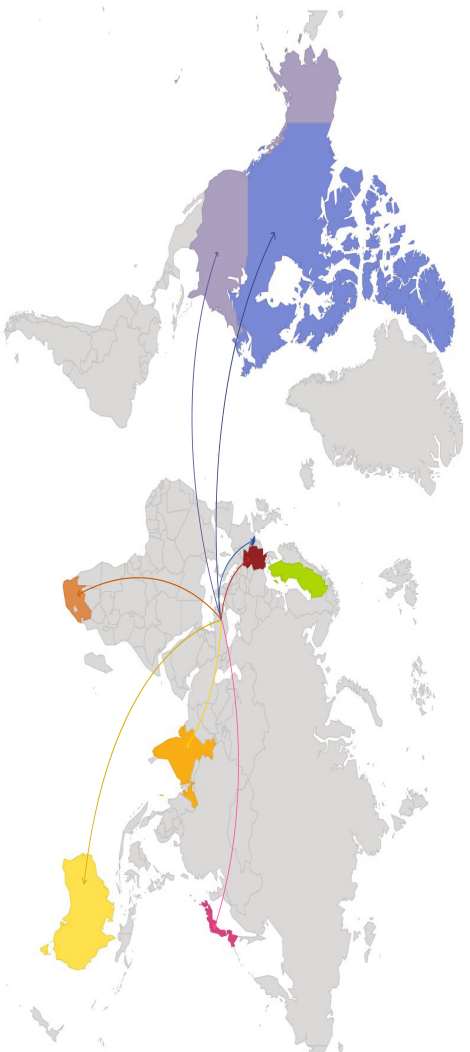
*John C. Maxwell

TEAM





From ENTEKNO to the World



© Entekno Materials, Inc., 2018





MicNo® New Generation Particle Technology

Prof. Dr. Ender Suvaci
www.enteknomaterials.com



©Entekno Materials, Inc., 2018

MicNo®

How We Started?



©Entekno Materials, Inc., 2018





<http://subdomain.futuremarketsinc.com/wp-content/uploads/2014/10/Zinc-Oxide-Nanoparticles-ToC.pdf>

7 PRODUCER PROFILES, PRODUCTS AND TARGET MARKETS

- Altana/BYK Chemie
- American Elements
- Avancis
- BASF AG
- Buhler Partec GmbH
- Elementis Specialties, Inc.
- Grant Industries, Inc.
- HokuuTech Co., Ltd.
- Ishihara Sangyo Kaisha Ltd.
- Nanosol Chemical Nanoparticles, Inc.

onthenano

The Global Market for Zinc Oxide Nanoparticles
www.futuremarketsinc.com

- Kolbo Products, Inc.
- Marmon Technologies
- Nanosol Chemical Nanoparticles Co., Ltd.
- Nanjing High Technology Co., Ltd.
- Nanobeach
- Nanocesis
- Nanomaterials Technology Pte Ltd.
- Nanosol
- Nanosol Material
- Nanosphere LLC
- Nanosphere Technologies Corporation
- Nanosphere & Amorphous Materials, Inc.
- Resol Advanced Materials
- Sakai Chemical
- Sigma Aldrich
- Sunchem
- Sunchem Materials
- Sunitomo Osaka Cement Co., Ltd.
- Syntise GmbH
- Taveca Corporation
- TFX Nanotechnologies, Inc.
- Unicores

icN^o

Motivation



©Entekno Materials, Inc., 2018

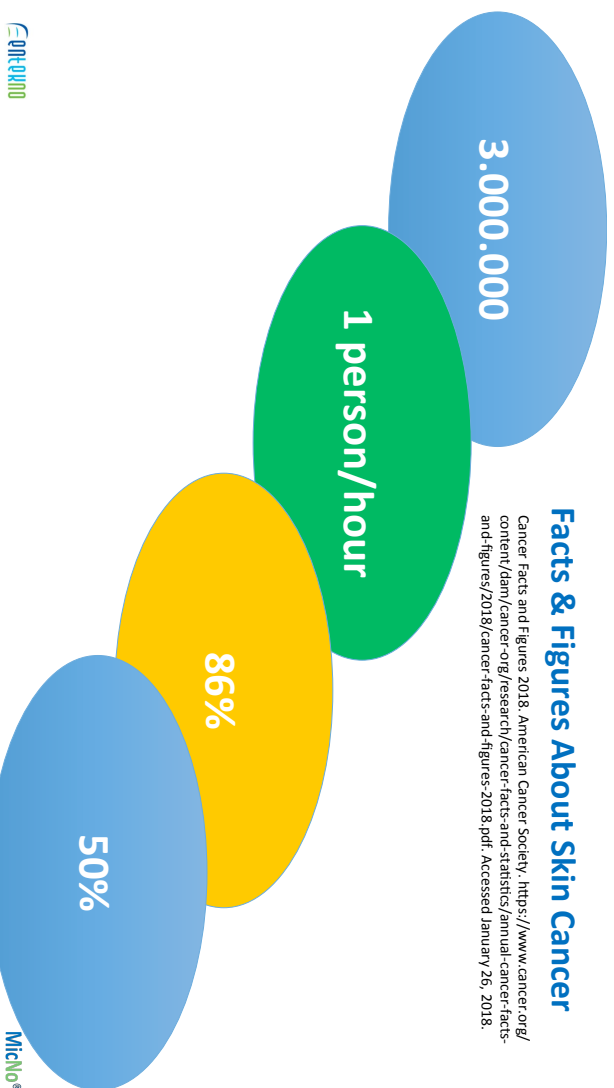


Cosmetics Industry

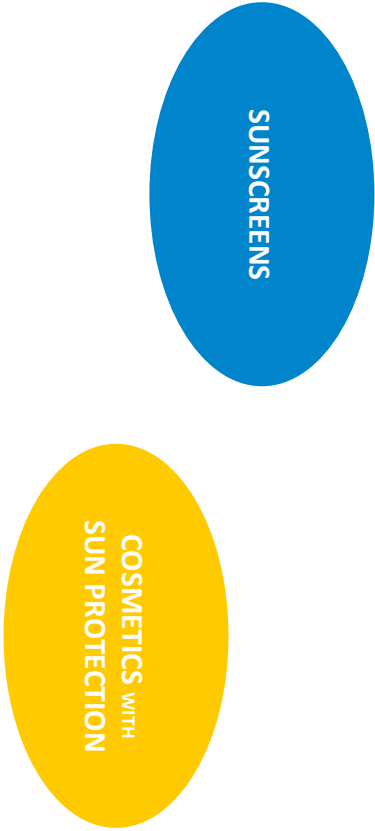
- Global Personal Care and Cosmetics Market ~\$454 billion.
- In 2012, market value of sun care products was \$12 billion.
- Market growth rate is 6.4% per year but very competitive market
- Highest growth rate in ZnO and TiO₂ including products (“nice to have” to “need to have” transition due to broad UV spectrum)

Facts & Figures About Skin Cancer

Cancer Facts and Figures 2018. American Cancer Society. <https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2018/cancer-facts-and-figures-2018.pdf>. Accessed January 26, 2018.



Sun Protection in Cosmetics



©Entekno Materials, Inc., 2018



Innovative R&D



©Entekno Materials, Inc., 2018

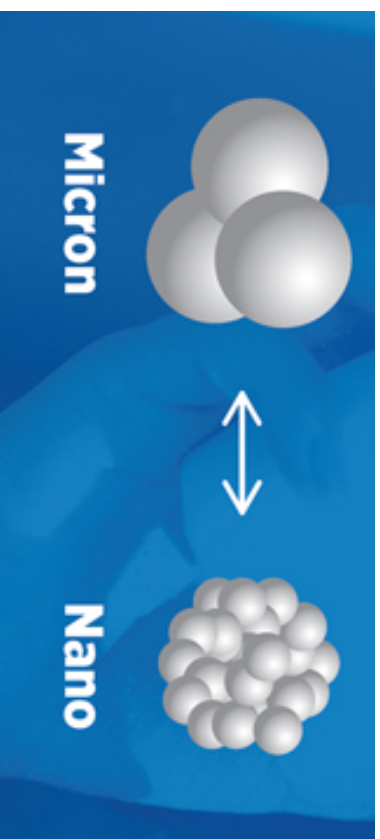


Globally Approved Only Broad Spectrum
(protection both in UVB and UVA) UV-Filter

Zinc Oxide (ZnO)



Currently Available Conventional ZnO Forms



Industry Question Marks Over Current ZnO Technology

| ATTRIBUTE | MICRON | NANO |
|--|--------|---------|
| UV protection per mass (Unless they are agglomerated) | Low | High |
| Transparency | No | High |
| Surface coverage per mass (Unless they are agglomerated) | Low | High |
| High Energy Visible Light/Blue Light protection | High | Low |
| Level of toxicity | Low | V. High |
| Uncontrolled agglomeration | Low | V. High |
| Level of phytotoxicity | Low | V. High |



©Entekno Materials, Inc., 2018

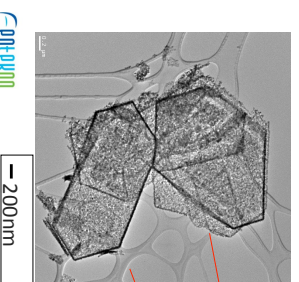


Novel Mineral-Based UV Filter

Micron + Nano = MicNo®

○ Tailored

- Platelet shaped
- Micron particles which are composed of nano primary particles

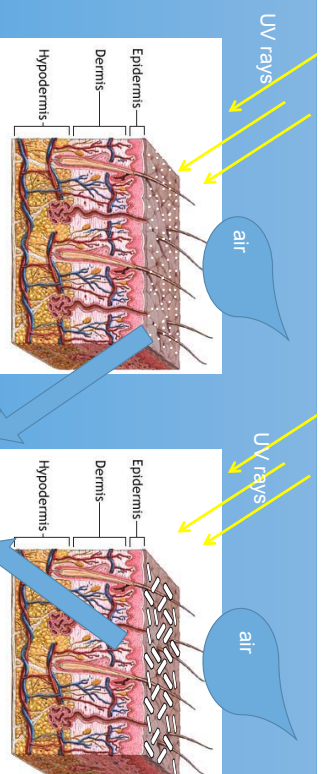


Primary nano particles (10-40 nm)

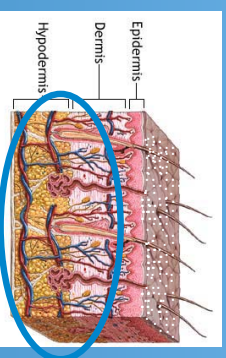
Micron size particle (2-10 µm)

MicNo® Particle Technology

Solve
Sunscreen
Producers
Problems?



Effective Surface Coverage



No penetration through the skin.

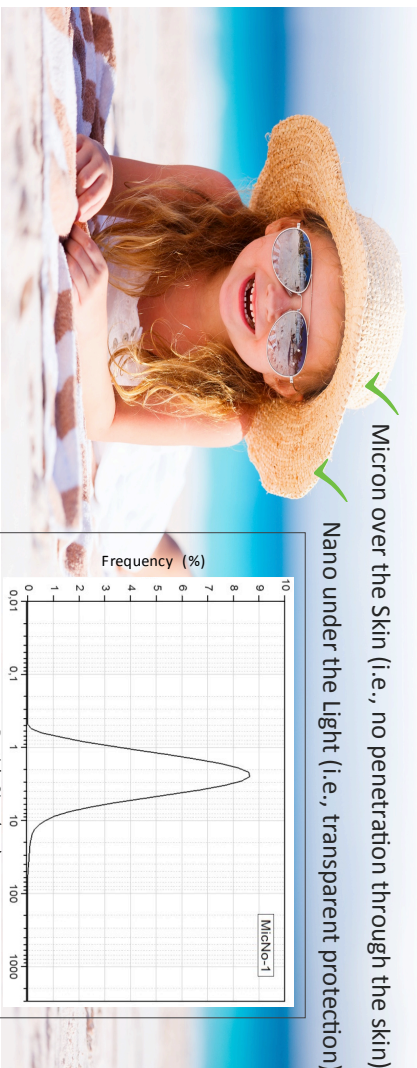
Micron + naNo = MicNo®



Micron over the Skin (i.e., no penetration through the skin)



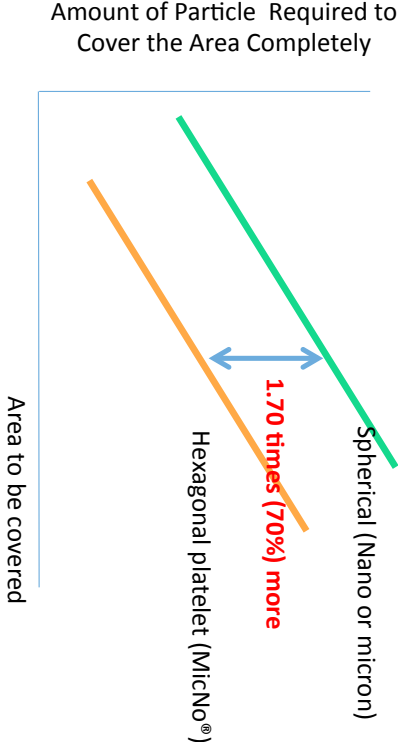
Nano under the Light (i.e., transparent protection)



MicNo[®] vs. Spherical Particles Surface Coverage Ability Comparison

Assumptions:

MicNo = Hexagonal platelet
(4x1.75x0.1 µm; Nano:
Spherical (300 nm); No
uncontrolled agglomeration



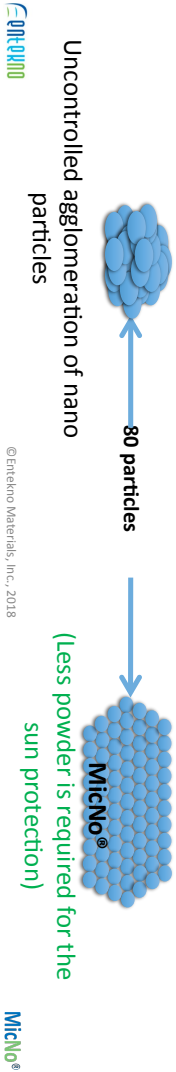
©Entekno Materials, Inc., 2018



MicNo[®] : Perfect Solution *

*Life Sciences Ingredients, 48-51 (1) 2018

| ATTRIBUTE | MICRON | NANO | MicNo [®] |
|---|--------|---------|--------------------|
| UV protection per mass | Low | High | V. High |
| Transparency (unless they are agglomerated) | No | V. High | High |
| Surface cover per mass | Low | High | V. High |
| High Energy Visible Light/Blue Light protection | High | Low | High |
| Level of toxicity | Low | V. High | Low |
| Uncontrolled agglomeration | High | V. High | Low |
| Level of phytotoxicity | Low | V. High | Low |
| Broad spectrum antibacterial activity | Yes | Yes | Yes |



How to get Investment?



©Entekno Materials, Inc., 2018



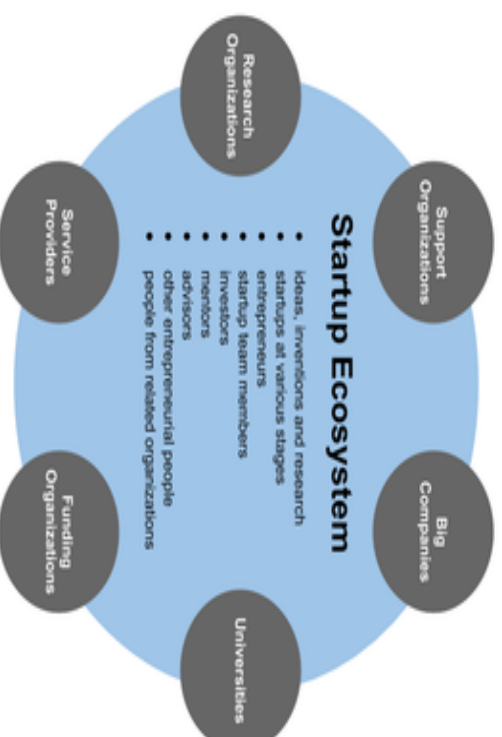
UTTP
Applied Technology Commercialization Programme
by
University of Texas Austin
and
Bilkent University CyberPark



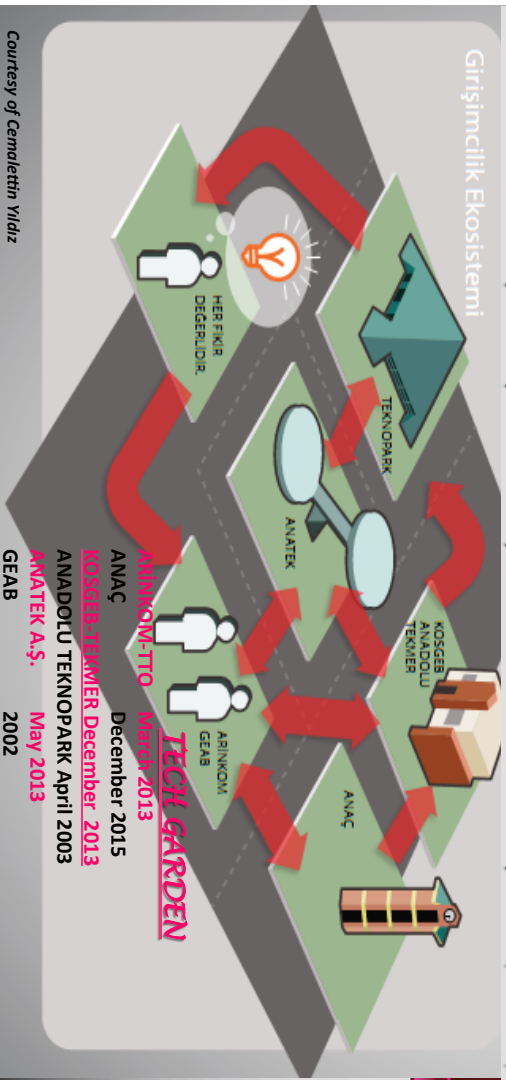
The MicNo TEAM @UTTP



Importance of the Ecosystem



Anadolu University Entrepreneurship and Innovation Ecosystem (AÜGİS)



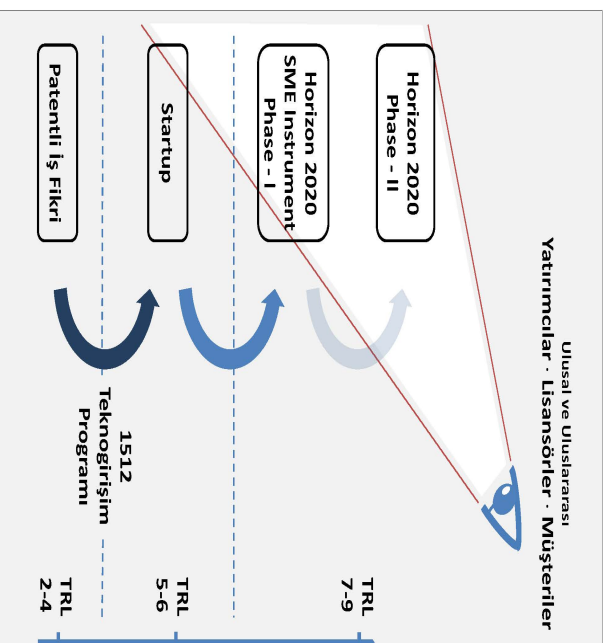
Courtesy of Cemilettin Yıldız

The AÜGİS Team



A Very Powerful Approach to Attract Investors' Attention and Get Access to Other Funding Sources





Thanks to
Mahmut
Kiper as
being a
lifelong
Mentor
for me...
MichNo®

MicNo®

Safe, Transparent and Mineral-Based
Ingredients for Sunscreens



Co-funded by the Horizon 2020
Framework Program of the European Union



Phase-I Feasibility Study for
MicNo®

Phase-II Commercialization
The 3rd Time is the Charm
Thanks to Mr. Mehmet Alpatlı,
and Mr. Aburrahman Türk



©Entekno Materials, Inc., 2018

Benefits ☺

MicNo®



CHAMPIONS LEAGUE®



Challenges?



© Entekno Materials, Inc., 2018



Sustainability...



©Entekno Materials, Inc., 2018



Science should speak for you...



©Entekno Materials, Inc., 2018



Standards and Regulations



© Entekno Materials, Inc., 2018





REACH Registration

ISO Standards

© Entekno Materials, Inc., 2018



COSMOS
APPROVED

Continuous Improvement, Innovation and Business Development

More Challenges...

ENTEKNO Core Team

A Blend of
Young and Experienced
East and West
Mars and Venus

...



Cham, PhD



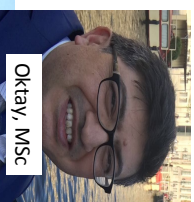
Kubilay



Erol



Ender, PhD



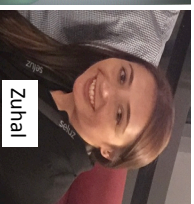
Oktay, MSc



Gürol, MSc



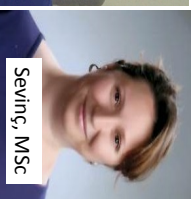
Tümerkan, PhD



Zuhai



Murat, PhD



Sevinç, MSc

ENTEKNO

MITNo®



Thank you for your kind attention.