



SOLVAY

asking more from chemistry®



COLLOIDAL CERIA

Zenus® : Drops of perfection



ZENUS®

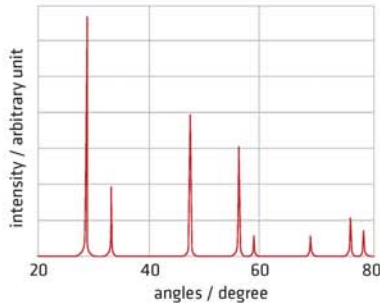
With the continually decreasing size of integrated circuits in today's semiconductor industry, the need for an effective and adapted CMP polishing solution has never been greater. Production costs and reliability are too critical to risk using old solutions that are no longer adapted to today's progressively smaller line width, potentially causing damage instead of producing the required scratch-free surfaces.

Engineered and produced by Solvay, a worldwide leader in chemicals, Zenus® is a colloidal ceria abrasive that resolves major defectivity issues faced by semiconductor manufacturers for CMP applications. Zenus® reaches new levels of precision and predictability to accompany your production into the next generation.



ONE PARTICLE, ONE CRYSTAL, NO ROUGH EDGES

Regularity and uniformity are undeniable advantages for wafer polishing. X-ray diffraction clearly shows how Zenus® exhibits strong CeO₂ crystallization, with crystallite size equal to grain size for maximum consistency. Abrasive particles in the resulting polishing slurry will not break apart and scratch wafer surface.



X-RAY DIFFRACTION RESULT

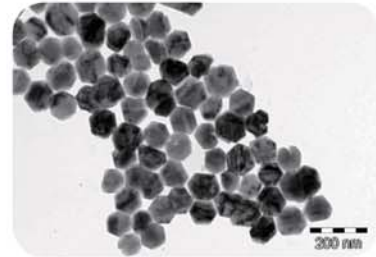
Measurement conditions

2θ: 20-80°

Rate: 1°/min

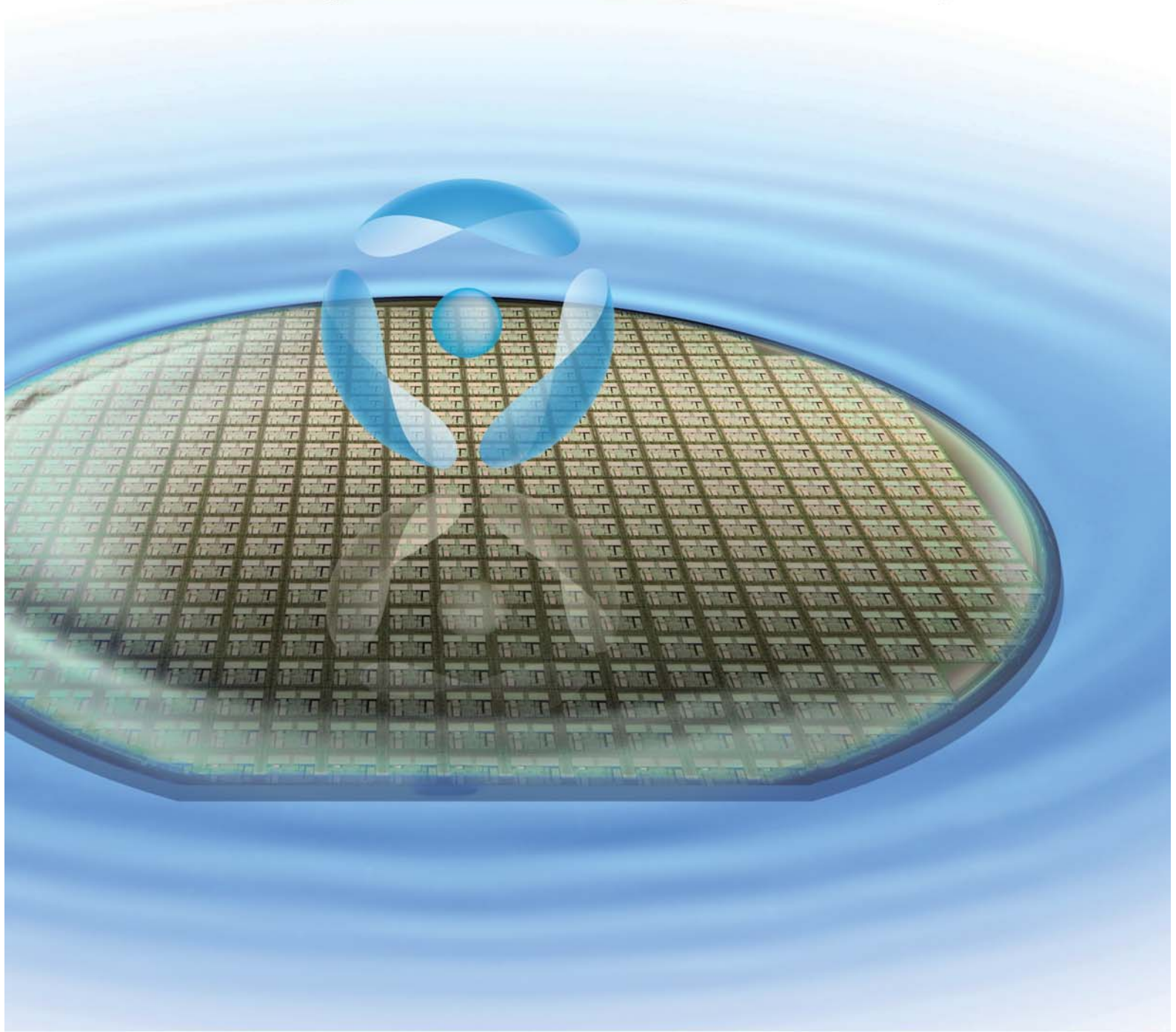
Lot. AK1225F

Red line: Theoretical CeO₂



Well-crystallized CeO₂
with narrow polydispersity

With the benefits of its technical composition and structure, Zenus® provides the semiconductor industry with a new technology to make abrasives and formulate the slurry needed to move into the next generation.



MAIN BENEFITS

- Non-aggregated particles
- Well-suspended colloidal solution
- Lower defects
- Higher production yield for semiconductor manufacturers

ADAPTING TO YOUR PRECISE NEEDS

Zenus® is a flexible solution that enables you to implement the slurry you require for your particular surface finishing needs. Just add your chemicals, no extra processing steps are required to produce the final polishing slurry.

- Particle size range available from 10 nm to 60 nm
- Monodispersity of the primary particle
- From 10-30 wt% water suspension
- Surface treatment available on demand
- Packaged, ready-to-formulate



A DREAM DELIVERED

The industry has been dreaming of a technology like this for many years, but Zenus® is the first solution that has ever been available for mass production. A drop of perfection in a rough world, Zenus® represents a breakthrough that will smooth out your CMP polishing process.

ABOUT SOLVAY RARE EARTH SYSTEMS

Solvay Rare Earth Systems is part of the Solvay group, an international industrial company offering a broad range of products and solutions that contribute to improving the quality of life.

Solvay Rare Earth Systems provides rare earth-based formulations for use in automotive catalysis, luminophores, polishing and other specialty applications (medical, nuclear, etc.). The GBU focuses on high-growth markets such as catalytic converters, energy saving light bulbs and serves the needs of high value-added industries (flat screens, precision optics, etc.).

The GBU is an integrated industrial player with manufacturing operations and raw material supply sources both within and outside China. It builds on its acknowledged technological pre-eminence to offer a comprehensive and innovative range of products which respond to the sustainable development concerns of its customers.

Solvay Rare Earth Systems also launched its first rare earth recycling business outside of China in 2012.

A NEW GENERATION OF ABRASIVES FOR CMP SLURRY FORMULATOR

One of the major challenges facing CMP today is the ongoing demand for fewer defects and less scratches while requiring ever-higher removal rates and selectivity. Traditional ceria abrasives indeed provide superior performance, but until now have not been able to be applied into next generation technology nodes because of scratches and defects.

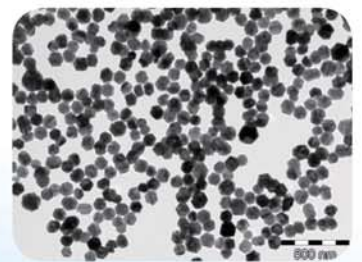
The result of several years of research and development work by Solvay, Zenus[®] offers smaller, rounder ceria particles and highly uniform nano-distribution for the final polishing compound. Their well-rounded shape, regular size, and consistent suspension present less risk of damage to your wafers. This results directly in higher yield and productivity for semiconductor manufacturers.

TECHNICAL INNOVATION ROUNDING YOUR TROUBLES AWAY

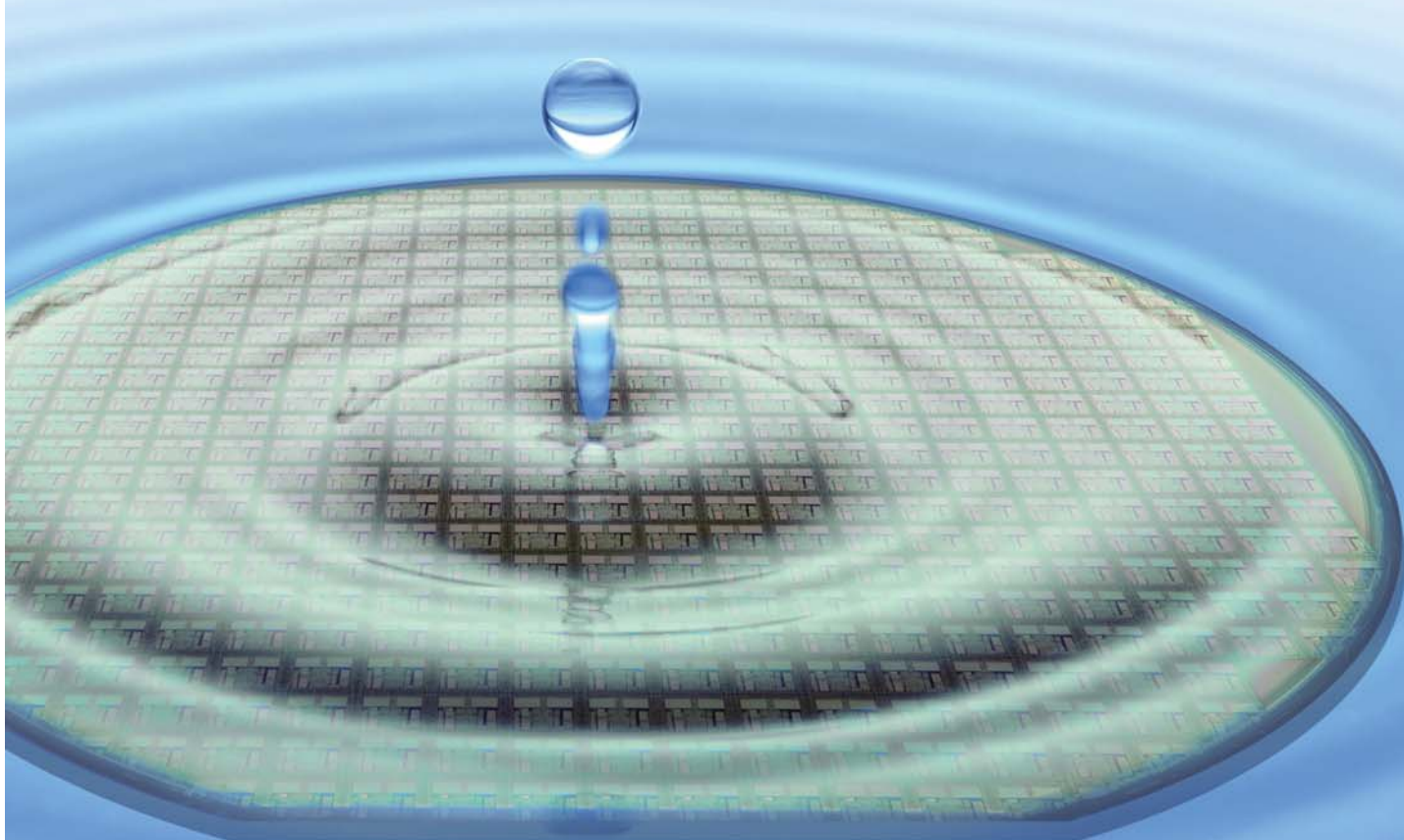
Zenus[®] offers significant advantages:

- Unique technology controls particle size and regularity precisely.
- Hexagonal particle form provides optimal performance against defects.
- Polishing slurry benefits from extremely even particle distribution.
- Implementation is easy with ready-to-formulate packaged solution.

Zenus[®] is available with different particle sizes so you can achieve the polishing performances required for your applications.



Rounded and regular Zenus particles generate fewer surface defects when polishing
Magnification of the picture x50k





Solvay S.A.
Rue de Ransbeek, 310
1120 Bruxelles
Belgique
T: +32 2 264 2111
F: +32 2 264 3061

Europe

Olivier Montserrat
Rhodia Opérations
190 Avenue Thiers,
69457 Lyon Cedex 06, France.
T : +33 (0)4 37 24 87 74
M: +33 (0)6 73 28 87 17
olivier.montserrat@solvay.com

United States

Ronald Tressen
Rhodia Inc Cranbury
8 Cedar Brook Drive Cranbury,
NJ 0 85 12-75 00, USA
T : +1 925-736-1175
ronald.tressen@solvay.com

China

Kevin Xin
Solvay (China) Co., Ltd
3966 Jindu Road,
Xinzhuang Industrial Zone,
201108 Shanghai, China
T : +86 (0 21) 24 08 95 97
kevin.xin@solvay.com

Japan

Ryoichi Kitayama
Anan Kasei Co., Ltd Kobe branch
Urban Ace Sannomiya Building,
8F, 4-1-22, Once-Dori,
Chuo-ku, Kobe 651-0088, Japan
T : +81 78 2 00 38 17
ryoichi.kitayama@solvay.com

Korea

Jong-Wonk Park
Rhodia Korea Co., Ltd
4th Fl, Poong-Lim B/D, 823
Yeoksam-Dong, Gangnam-Gu,
Seoul 135-784, Korea
T : +82 (2) 21 86 26 31
jong-wonk.park@solvay.com

www.solvay.com



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