

Dennis Thomas – Umicore OEDC Annual 2010 *materials for a better life*

Umicore
 "Umicore Tabaty" - the world's greatest car, sponsored by Umicore, which ranked second in the 2007 "World Side Challenge" award in Australia.

Introducing Umicore

Umicore today- a materials technology group

"Less is more"
 Metal related materials can be efficiently and infinitely recycled, which makes them the basis for sustainable products and services

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80% of R&D expenditure in clean tech domain

innovative technologies specifically designed to optimise the use of natural resources and to reduce environmental impact

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Global market leadership in four divisions

Advanced Materials	#1 World Top 2 World	Cobalt & Germanium materials Rechargeable battery materials
Precious Metals Products & Catalysts	Top 3 World #1 World	Automotive catalysts Braze alloys & contact materials
Precious Metals Services	#1 World #4 World	Precious metals recycling PGM refiner
Zinc Specialties	#1 World	Zinc specialty products

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We have global presence

● Production sites
● Tech-centers

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Umicore – A Full Service Provider in the Automotive PGM Cycle



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Recycling solutions

Recovering scarce metals from e-scrap

- Obsolete mobile phones contain valuable precious metals such as gold (Au), silver (Ag) or palladium (Pd) which Umicore is able to capture
- Currently, only 1-2% of all mobile phones are recycled worldwide, offering huge potential
- We also recycle the batteries



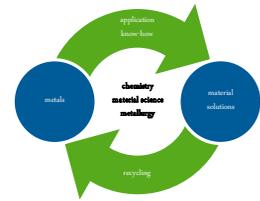
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Umicore today- a materials technology group

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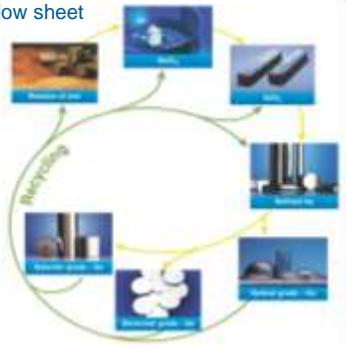
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New state-of-the-art germanium substrates production facility while under construction



Germanium flow sheet



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Business Line Substrates (= Ge wafers)

Substrates

Main products

Substrates for GaAs-on-Ge space solar cells made from germanium single crystals produce solar cells with a very high efficiency (close to 40%).

Polished germanium wafers:

- Space Solar Cells
- Terrestrial Solar Cells: concentrator type
- LED's



Germanium substrates



Satellite communications have opened new markets

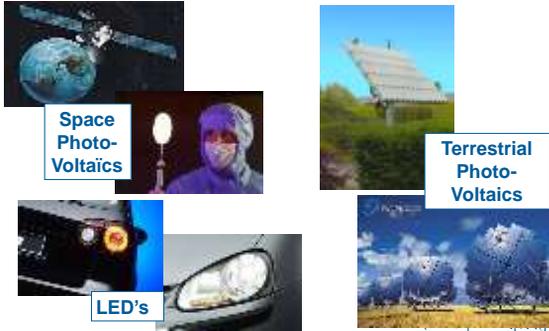


Terrestrial concentrator solar panel

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Germanium substrates applications



Germanium and its role in solar energy A bright future on earth !

- 2 technological approaches : mirrors or lenses



6 kW panel by Solfocus



Arizona Public Service's site Phoenix

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Our materials are found around the world...
... and beyond



Umicore's substrates were used on both NASA Mars Exploration Rovers - Spirit and Opportunity - as basis of the solar cells and panels provided by Spectrolab.

SOMETIMES, THE HANDS WE ARE DEALT ARE NOT CLEAR WINNERS



WHAT IF YOU ARE IN A RURAL AREA WHERE THE ECONOMICS OF THE SITE SELECTION PROCESS IS NOT AN OBVIOUS ADVANTAGE?

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What Site Selectors Ask.....



Geographic Preferences – Logistics

Industry Presence – Skill Cluster

Resource Availability -Size and Education Level of Workforce, Unemployment Rate, Per Capita Income, Cost of Living, Universities and Cultural Opportunities, Housing Availability, Utility Rates, Transportation Access, Construction Costs, etcetera, etcetera, etcetera.

And that's before you even know they are looking!
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As you well know, state and local economic development tries to put on their best poker face – sometimes bluffing – but, it's difficult to claim major happenings if it is not reported on the internet. Like it or not, the Web has become the great equalizer, allowing instant access to government data and news events.

Even though we thought Quapaw was the obvious choice to locate a substrate facility because of our experience from the 1980's and 1990's – today it's a whole new deal and old school experience was actually a minor factor in the final choice.
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What Site Selectors Needed to Know But Didn't Ask



What we did was establish our “poker face” to convince company management that we could win the hand.

Local Manufacturers in the Quapaw area are collaborating with NEO A&M College in Miami and the Northeast Technology Center in Afton to provide a curriculum appropriate to what manufacturers like to call “industry.” We cannot all be millionaire NFL Players and You Tube Stars.

These partnerships between industry and academia bring instruction on what is really important to the business: Oral and Written Communication, Applied Basic Math and Stat, Metric to English Conversion, Business and Personal Ethics, Quality Control, Group Dynamics, Lean Manufacturing, and so forth. Basically, an industry ready workforce with an appreciation for productivity and the importance of each factor – whatever the job.
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We talked about synergies with existing businesses in the area – not directly linked to the germanium materials business – but, maybe with the same customers.

We talked about the dedication of the workforce locally – job hopping is so “West Coast.” The investment in training and leadership becomes an enduring relationship and nearly “family.”

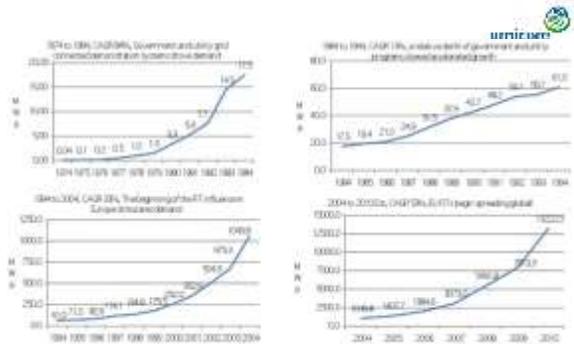
We talked about the commute.....rush hour – 10 miles to work is 10 minutes. If you want opera, 90 minutes gets you to Tulsa. If you want boating and fishing, 30 minutes gets you to the lake. If you want snow skiing and ocean beach, well you can't have everything.
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And, perhaps you have a winning hand right now in your community backyard – you just don't recognize it. Many existing businesses have strong growth potential, or great ideas. As an example, Rogers State University has a program to help these businesses recognize this and put a plan into action.

Sometimes, you've got to help them look beyond next month and next year. Sometimes, the payoff is not for many years. Recognize and try to solve the problems of the present; but, look to the future for true success.

As I mentioned, we worked in solar during the 80's and 90's and then lost our major customer and quit. The next slide indicates what happened.

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Used by Permission: Paula Mints, Director, Energy, Navigant Consulting Solar Services Program

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We decided to draw a new hand and go ALL IN!

Clean air is our business

