2011 has seen many changes, some unforeseen, some expected. It is also the year when Asia-Pacific takes the lead with 43% of the 90 billion dollar world coatings market and with China surpassing the United States as the lead market. This forecasted growth until 2014 does not go unnoticed by the industry. There has been a flurry of activities by multinational companies to establish regional manufacturing and R&D operations despite the issues of raw material supply to feed the growth opportunities.

Forecasting is never an exact science because it relies on current data and none of our economists have in their possession the ultimate crystal ball. Unexpected economic variables can come up anytime, such as changes in the price of oil, currency exchanges, wars and even climatic changes. And, sometimes game changing events in science and technology that seemed insignificant at first, cause ripple effects later on how the coatings business and markets turn out in the future.

As we are all so busy keeping our attention on our own companies and our bottom lines, I thought to take a break and just list for you some of the innovations that may seem like a trickle, but might have far ranging effects in the future. This is not a comprehensive list or a list that is expertly selected from many. To be perfectly honest, this is my list of those innovations that I happen to ran across along the way when opportunities allowed me to digress from my core business. So, if anyone has a pet technology not on my list, please feel free to suggest and will be happy to include on my next list for 2012.

Many thanks for reading.

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Poseidon Sciences is a research and development company specializing in evaluations of marine coatings using laboratory and field immersions.

Laboratory studies:

- Barnacle cyprid assays
- Ecotoxicology of active compounds and coatings
- Marine micro-algae and bacteria assays

Field studies:

- Shallow submergence of coated panels
- Dynamic testing
- Subsea immersion

➡ HzO

Water is the leading cause of damaged to electronic components. HzO created transparent nano-scale coating to protect electronic parts from water damage.

➡ NDSU

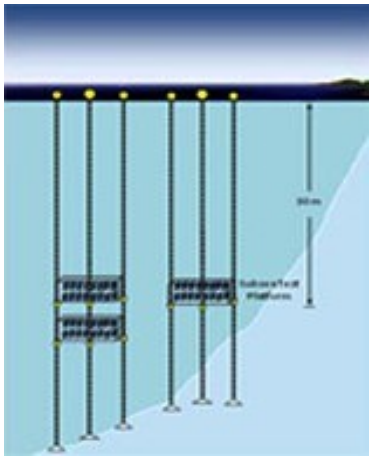
The Department of Coatings and Polymeric Materials of the North Dakota State University announced the development of bio-based resins from renewable resources, such as sugar beets, soybeans, flax seeds and sunflower seeds. Resins from these renewable sources are produced without formaldehyde and bisphenols rendering them environmentally safer than current synthetic resins.

➡ Rice University and Monash University

By coating sand grains with graphite oxide, university scientists were able to create sand filters with highly efficient filtering capability to remove mercury and dye molecules. This technology utilized waste products from graphite mines and considerably cheaper than activated carbon. Potential applications are in third world countries where filtration materials are expensive and where there is greatest need for clean drinking water.

➡ Idea Paint

The company has developed a paint that can be rolled on any smooth surface to turn it into a high-performance dry-erase surface.



P2i

The technology works by applying nanopolymers on the surface of any product using ionized gas to covalently bond the polymer on any surface. This nanopolymer resists liquid absorption from the outside; creates oil and water repellency by reducing the surface energy to 1/3rd of polytetrafluorethylene.

New Energy Technology, Inc.

The company developed a spray-on coating technology that generates electricity on flexible plastics. The commercial target is tinted window films that generate electricity.

Rensselaer Polytechnic Institute & Rice University

Scientists from both institutions collaborated on the development of a graphene-based coating that captures energy as water moves over the sensors. Because of the low power generated, the potential applications will be in microbots and later possibly harvesting power for mini-submarines or from hull of ships. Graphene is the thinnest, strongest material ever made (harder than diamonds) that conducts energy like copper and likely to replace silicon in the near future.

Nanyang Technological University

Scientists from this Singapore University developed an anti-corrosion coating technology through microencapsulation of hexamethylene diisocyanate (HDI) and mixing with epoxy resins, followed by application on to steel. When the coating is damaged, HDI is released, mixing with incoming water that creeps into the damaged area and reacts forming polyurea to seal the damaged section of the protective coating.

Nanopool GmBH

The company has created a nano-scale anti-microbial coating based on silicone dioxide nanomaterial can be applied by wiping on glass to create a dirt and water repellant surface.

Selenium, Ltd.

This company developed a technology to coat proppants (ceramics and sand used to prop up shale in hydraulic fracturing operations) with covalently bonded selenium to prevent iron and sulfur bacteria from clogging proppants and reduce oil flow, without allowing selenium to leach to the environment. By using selenium, an environmentally friendly mineral with antimicrobial properties, makes it possible to reduce the use of biocides in hydraulic fracturing operations.