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Did you know...

The Lab Design 2003 Conference & Workshop, **September 23-25, 2003 in Philadelphia, PA**, will give lab users the opportunity to meet and learn from today's leading lab planning and construction professionals.

The Planet Mars

Will be the closest it has been to earth in our lifetime Aug. 27, 2003. See pg. 2

Tribology Testing Specialty Test Machine Developed for NJ Laboratory



Manufacturers and research scientists sometimes need special equipment to test newly developed compounds and components.

A testing laboratory specializing in tribology, or, the science of friction, lubrication and wear between moving surfaces, needed to test the wear rates of mating components at standard speeds, variable loads and low vibration levels. The laboratory equipment manager contacted

Sigma Design, because of their experience in specialty machine design. Sigma developed a testing machine that performs repeatable standardized tests running at axial loads of 1000 kg and a rotational speed of 1000 rpm.

The lab's research scientists use this specialty test machine to qualify lubricants for new products. The data is used to help extend the life and durability of their customer's mechanical components.

How do you reduce new product cycle time?

MOST MANUFACTURERS REALIZE THAT THEY MUST DESIGN PRODUCTS FASTER AND DEVELOP FLEXIBLE PRODUCTION MACHINERY TO GET PROFITABLE PRODUCTS LAUNCHED BEFORE THE COMPETITION.

"SHORTENING THE DESIGN CYCLE IS THE MOST IMPORTANT CHALLENGE THEY FACE".

A Recent report from **SOLID WORKS AND**



MIT studied the effect 3D design and engineering analysis tools have on New Product Development.

Web-based questionnaires were sent to thousands of firms with 3D CAD, Stress analysis (FEA) and Fluid analysis (CFD) experience.

- 100% of the companies reported an increase in productivity.
- 67% of the respondents reported an improvement in product quality.
- 59% of the respondents reported fewer product field failures.
- 56% reported a reduction in the number of prototypes required

Let Sigma Design Company Put These Tools to Work on Your Next Project.

Technical Interest Events

The Mid Atlantic Chapter of the American Filtration and Separations Society will hold its fall meeting in conjunction with The Northern New Jersey Plant Engineering and Maintenance Show and Conference, produced by

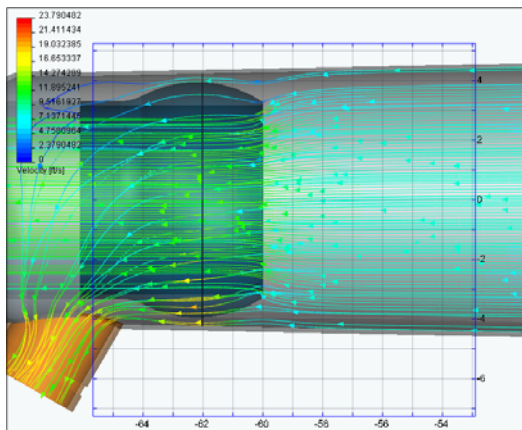
Engineering Software Tips:

Sometimes AutoCAD files can get rather large, as large as a megabyte or two, even though there doesn't appear to be much to the drawing on the screen. Even after using the AutoCAD "PURGE" command, the file still seems too large. You check that all the layers are visible to be sure you're not missing something and it is still too large. When this happens...

Try making a "WBLOCK" of your file. Using the "WBLOCK" command, "window" everything you see on the screen, then rename the file name and save. Compare the size of the old file to the size of the new file. The new file should be much smaller. While this may not work with large drawings that use lots of blocks, many files can be made considerably smaller.

Computational Fluid Dynamics

Recent advancements in computational fluid dynamics analysis (CFD) provide medical device and filtration equipment manufacturers the ability to see the flow characteristics of their designs during validation efforts. In a recent analysis, porosity and differential pressure modeling helped a manufacturer cut his prototype runs by 50%.



Centrifuge for Seawater Separation.

Particle flow analysis of a solid liquid separation device was simulated to reduce power requirements

Cygnus Expositions. The meeting will take place at the New Jersey Convention Center on Oct. 28 and 29 2003. The filtration talks are open at no cost to attendees of the show. The sessions are listed at:

www.afssociety.org/MidAtlanticChapterAFSFallMeeting.htm

Planet Mars Rapidly Approaches Earth.

On August 27, 2003, at 9:51 UT, Mars will be the closest it has been to the earth since 57,671 BC. The centers of Earth and Mars will be a mere 34,646,418 miles (55,758,006 kilometers) apart. Even at this close distance, light takes just over 3 minutes to traverse interplanetary space.

On the night of August 26-27 Mars will appear more than double the size it was in early May of this year.

Mars will not be this close to Earth again for another 284 years. In the year 2287 Mars will actually be slightly closer to Earth. The orbit of Mars is becoming more elongated due to the gravitational attractions of the other planets.

http://skyandtelescope.com/observing/objects/planets/article_970_1.asp



Chefs Corner

You may wonder why Sigma Design Company would have a section titled

"CHEFS CORNER"

For those of you who don't know us well, one of our principals, Deborah Lynch, is the Director of a local Culinary Arts Program. Professor Lynch has been involved with food service, culinary arts, food sanitation and food processing for over 20 years.

In addition to highlighting our work on Food Processing Machinery, we thought you would be interested in recipes from some of the top chefs in New York & New Jersey.

Starting next issue, we will highlight proven recipes you can try at home. In the meantime, see our fresh fish recipe on the next page.

Environmental Solutions

Can you imagine toxic waste dumps that resemble English cottage gardens? An article in The International Design Magazine (June 2003) entitled “Toxic Avengers” describes a move to clean toxic sites using plant technology. This exciting alternative technology is called

Phytoremediation, which uses plants to aid in the remediation of contaminated sites. To date, researchers have looked at several hundred of the over 200,000 plant species to determine their uses in phytoremediation. For example, some are best at remediating water contaminated with heavy metals while others reduce contaminants, such as arsenic, in soils. With over 40,000 toxic sites identified by the EPA, and nowhere to haul all of these contaminated materials, interest in the technology is blossoming. More than 30 US universities are experimenting with these toxin-eating plants. One of the companies specializing in phytoremediation has launched a project to purify groundwater in New Mexico using arsenic-loving ferns. Just like establishing a good perennial garden, the results can take years. But we think this is an aesthetically and environmentally pleasing approach worth watching. Sigma Design is looking at ways to use this proactively in New Jersey.



On The Waterfront

Once again, researchers are calling fish the ‘miracle food’.

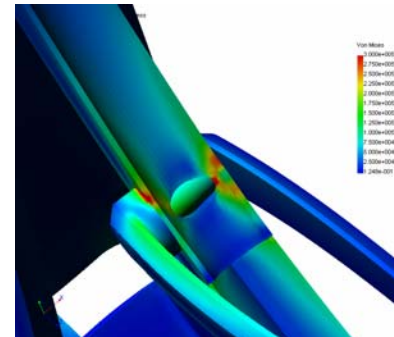
Researchers reported in the spring of this year, that eating fish two to four times a week can reduce the risk of heart disease by as much as 30%. This study, published in the Journal of the American Medical Association, was conducted over a 16-year period on close to 85,000 women. Past studies published in the New England Journal of Medicine cited similar benefits to men who consumed fish. These men had higher levels of omega-3 fatty acids — the healthy fat found in fish. It seems that the fat in fish actually lowers cholesterol, and helps prevent blood clots that form in heart attacks. The best sources of the healthy fatty

Customer Insight

1. **Ideal Interiors**, was just awarded 8(a) contractor status by the SBA and Federal Government. Sigma Design and Ideal will collaborate on Design Build projects.
2. Sigma Design helps **Biach Industries**, Cranford NJ design and analyze (FEA) specialty tools for the Nuclear Industry. www.biach.com
3. **Northstar Engineering**, Slidell Louisiana and Sigma Design have agreed to co-develop Marine Design Projects on Gulf and East Coasts.

Medical Device Development:

Sigma Design Uses FEA Analysis to Uncover High Stress Areas in a Heart Dilator.



acid are ocean fish such as salmon, tuna, mackerel and striped bass. So, when you return from Montauk, with your ‘catch of the day’, know that you’ve done something good for both your head and your heart. **Here’s our favorite way to cook freshly caught striped bass.**

Remove the head, fins and scales and clean.

Lightly rub the entire fish (inside/outside) with Olive Oil and garlic. Fill the inner body cavity with fennel, orange slices and salt and pepper. Let it sit for ½ hour. You may need to tie the fish with butchers twine to keep the seasonings inside.

Place on a hot grill. A two pound striper needs to be turned once ~ 6 min per side. Monster stripers >10 lbs need to be turned several times on ten minute intervals. Set the grill heat to medium after turning twice. Before pulling off the grill, check with a fork.



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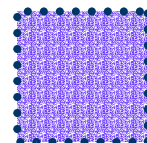
And of Course... Interesting Technical, Engineering & Design Ideas

About Our Organization...

Founded in 1962, Sigma Design Company Provides Creative Design and Advanced Engineering Analysis for the Development of New Products, Complex Electro/Mechanical Machinery, & Specialty Filtration Equipment.

Target Markets include: Aerospace, Automotive, Biotech, Electronics, Environmental, Food & Beverage, Industrial Machinery, Marine & Shipbuilding, Medical Devices, and Pharmaceutical.

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