

POROUS → WORKS

Vol. 2 – No. 1



News and Information on How Applied Porous Technologies Can Work for You!

Welcome



As 2004 gets underway, we are pleased with how the first quarter is progressing. This newsletter will let you know of a few new and exciting projects that are happening at Applied Porous.

First, we are excited to be opening a sales office in Europe that will better allow us to service both our European and Asian customers. Please see the story at right.

Additionally, we are pleased to add laser and electron beam drilled porous metal filters to our product line. A new partnership allows us to offer filters that, unlike Sintered Porous Media, are not limited in the material of which they can be constructed. Additionally, the drilled media pore sizes begin at 50 microns and there is almost no limit to the maximum hole size.

Finally, for the remainder of 2004, we are pleased to be involved in trade shows that allow us to showcase our products and services. Our first stop in 2004 will be at the Pittcon show in Chicago, March 7-12. We will be at booth 4307 – stop by, say "hello" and take a look at some of our new products. Please visit our Web site for future trade show and new product announcements.

Sincerely,

Ed Swiniarski, President

Inside...

- **Featured Application: LOCAAS Engine Filter** → 2
- **Staff Spotlight: Manufacturing Team** → 2
- **Laser and Electron Beam Drilled Porous Media** → 3
- **See us at Pittcon** → 3
- **ChemShow 2003 was a Success** → 3
- **Frits and Filters for Liquid Chromatographic Systems** → 4



European Office is Open for Business!

In an effort to better serve both European and Asian customers, APT has established a sales office in Europe. Applied Porous Technologies, Europe/Asia (APT-EA), will be based in Sweden and managed by Dr. Christian Wegner. Christian has over 20 years' experience working with chromatography applications – most recently as the Vice Managing Director for VICI Jour Research.

Through this office, we will provide our European and Asian customers with a more convenient option to deal directly with the manufacturer. As this will be a stocking sales office, product will be available for shipment directly to the European Community without the need to handle cumbersome paperwork. For more information on the new office, please visit our Web site, www.appliedporous.com, or contact our European office directly. The contact information for the European office is:

Applied Porous Technologies Europe/Asia AB
Attn. Dr. Christian Wegner

Källåsvägen 27
SE 42835 Källered
Sweden

Tel. +46-31-795 32 90

Fax +46-31-795 32 91

E-mail christian.wegner@appliedporous.com

Applied Porous Technologies, Inc.

Featured Application: **Porous Metal Filter for Unmanned Military Flight Vehicle**

Industry: Military

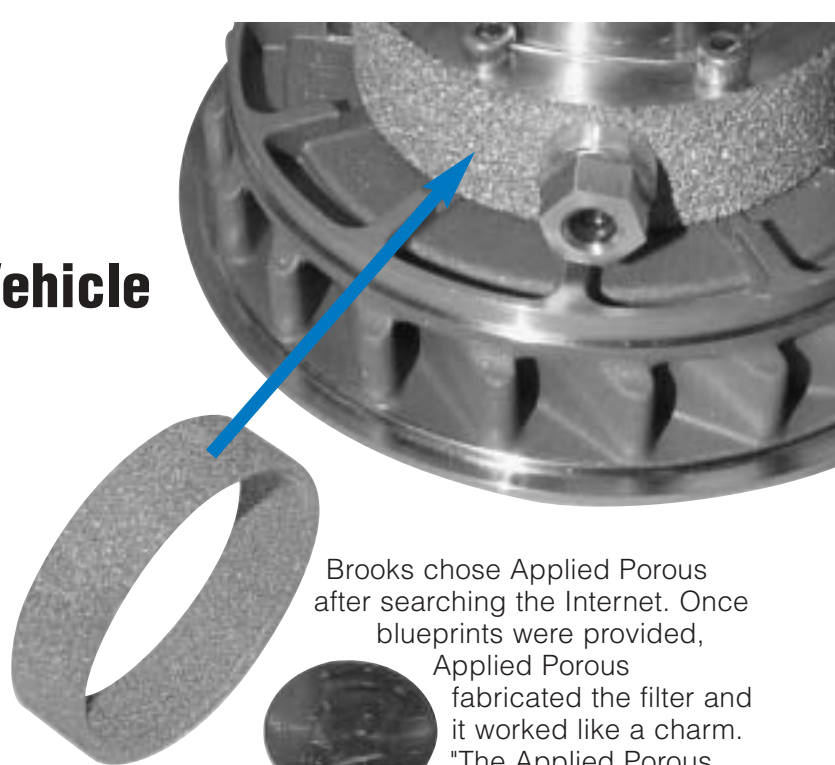
Customer: Technical Directions Inc. (TDI)

Lockheed Martin, in combination with the Air Force Research Lab Munitions Directorate, has manufactured a Low Cost Autonomous Attack System, better known as LOCAAS. This powered vehicle is designed to be launched from a high-altitude flight and then find its intended target.



The LOCAAS is powered by a 30 lb. thrust class turbojet engine manufactured by Technical Directions Inc. (TDI), Ortonville, MI. Applied Porous was contacted by TDI to manufacture a specialty filter for this

engine that would keep foreign material from entering the bearings and affecting the performance of the engine. Vern Brooks, TDI President, had detailed plans for the engine and the filter required.



Brooks chose Applied Porous after searching the Internet. Once blueprints were provided,

Applied Porous fabricated the filter and it worked like a charm.

"The Applied Porous filter was made exactly to spec., and its quality is

evident in the LOCAAS's performance," Brooks said.

In fact, the LOCAAS has recently gone from the laboratory to the testing field – it completed a high-altitude launch from start to finish with all objectives met or exceeded. This test at Florida's Eglin Air Force Base included deployment of its fins and wings and an in-flight start of the engine. After successfully navigating through a series of checkpoints, it proceeded on to the intended target.

Staff Spotlight: **New Employees**

Wayne White, Quality Control Technician



Wayne has joined APT as a quality control technician. He has 20 years experience in quality assurance working for companies such as Ensign Bickford (now Dyno Nobel) and Cuno Filtration. In this position, Wayne will hold direct responsibility for assuring that our products fully

meet our customers' quality requirements. In addition, Wayne will work with process documentation and the creation of work instructions.

Rich Perry, Manufacturing Technician



Rich brings with him many years of experience as a manufacturing technician and lab manager for companies such as JDS Uniphase and Hamilton Standard. He is a specialist in small part assembly and

will be coordinating our assembly department where we put together our many filter assemblies and chromatography products.

Applied Porous Technologies, Inc.

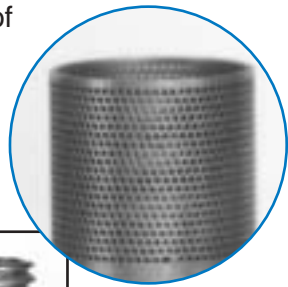
Expanding the Range of Our Filtration Capabilities

APT Forms Partnership to Develop Laser and Electron Beam Drilled Porous Media

Applied Porous Technologies is dedicated to becoming the best single-source supplier of filter media and related products. Not only is our goal to produce the highest quality parts in the industry, but also to offer alternatives to our customers that have special needs and requirements. In an effort to further expand our current product lines, APT has partnered with an outside company. Together, we have developed a proprietary filtration alternative that will add a new dimension to our current capabilities and provide new alternatives and solutions to separation applications. The result

is the addition of cost-effective drilled metal filters to our catalog. This new product line can accommodate almost any metal required for an application. In addition to standard materials, such as stainless steel, titanium and nickel, we can also work with more exotic materials such as tantalum, molybdenum and stellite.

Typically, Sintered Porous Media is limited to a maximum of about 200µm porosity. At these higher



Laser and Electron Beam Drilled Porous Media can withstand higher pressures with thinner material thicknesses.



Drilled Porous Media Examples:

Hole Diameter	Std. Material Thickness
.002" (50µm)	.005-.010
.003" (75µm)	.005-.015
.004" (100µm)	.005-.030

porosities, sintered porous metal can exhibit some limitations in strength, requiring heavy wall sections. We can now offer substantially more strength with these solid metal drilled filters, which are capable of withstanding higher pressures with significantly thinner material thicknesses. Minimum hole sizes start at 200µm, and there is virtually no limit to the maximum hole size we can drill. The range of hole possibilities is dictated only by material thickness.

Please visit us at the Pittcon show to see samples of our new capabilities, or visit our Web site at www.appliedporous.com for additional photos.

ChemShow 2003 A Year-Ending Success!

We were excited to be an exhibitor at the 50th annual ChemShow at the Jacob Javits Center in New York from Nov. 18-20. It was a pleasure to meet so many of our customers face-to-face. We were also very happy with the response to our porous metal tubes and the other products that were on display at our booth. We look forward to serving the many new customers we met at the show with the same level of quality and customer service that we have been providing to our existing customers.

Visit us at:

PITTCON

March
7-12, 2004

McCormick Place, Chicago, IL
www.pittcon.org
Booth 4307

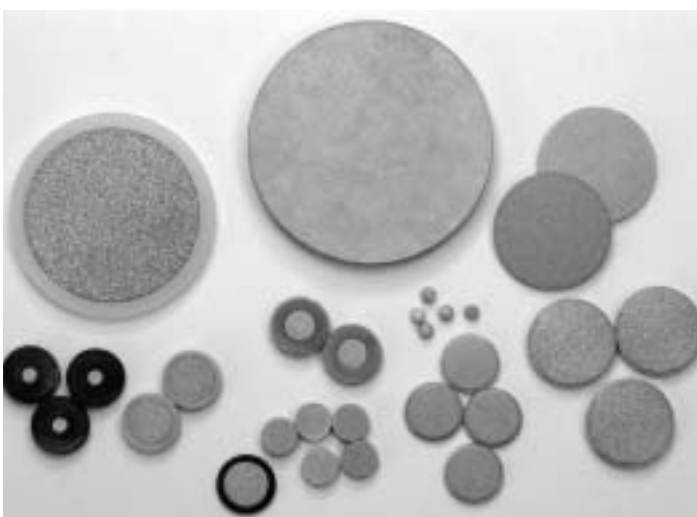


Applied Porous Technologies, Inc.

Liquid Chromatographic Systems Benefit from Frits and Filters

Frits and filters are porous metal products used in virtually all liquid chromatographic (LC) systems. Their function is to prevent unwanted particles from entering the LC system. These particles may come from the sample, the solvent or debris generated by the LC system itself (i.e. pump or injector). Particles entering the LC system may lead to clogging of capillaries, interference with the chromatography by changing chromatographic parameters or disturbance of the detector function.

The most important characteristic of a frit, besides the diameter and the thickness, is the porosity. When considering porosity, it is not only the average size of the pore



that is of interest, but also the size distribution and the amount of pores available. The size distribution should be a gaussian function with narrow tolerances. At Applied Porous Technologies, we continuously monitor our manufacturing process and maintain strict control of the powders used in our process in order to provide the tightest pore distribution possible.

In addition to pore distribution, it is important to consider the pore density, or number of

pores available. Take, for example, a frit with 2 μ m porosity and a surface of 0.25". The theoretical maximum amount of pores with 2 μ m average diameter would be about 5,000,000. This frit would give you the highest possible flow achievable. But, using standard bubble point testing, a frit with just a few 2 μ m pores would be considered a 2- μ m frit with an extremely narrow tolerance. However, it is unlikely that this frit would provide the required flow. Careful control of our powders and process allows Applied Porous to offer the best pore size distribution while maximizing flow properties.

At Applied Porous Technologies, we understand the needs of the chromatography industry. We work closely with many leading instrument manufacturers and column packing companies to provide the best products available. Our employees are committed to continuously upgrading our products through new product development and process improvement. We are always open to discussions and ideas on how to make our products and services better. Please call us at 860-408-9793 – we would love to hear from you.

Applied **POROUS** **Technologies, Inc.**