

Pair O Docs® 

 Professionals L.L.C.

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## THE ELEMENTS OF AEROSOL CONTAINER CORROSION

October 6 & 7, 2009 in Madison, Wisconsin

This course is designed for engineers, formulators, managers, marketing personnel, scientists and technicians who work on or are associated with developing aerosol products. **No prior corrosion experience or knowledge is necessary.** The course provides a common understanding about aerosol container corrosion so that all personnel who are involved in addressing aerosol corrosion problems may interact more efficiently and effectively.

Particular emphasis is placed on the corrosion processes in aerosol containers, typical tests used to measure and predict aerosol container corrosion, vocabulary used in corrosion engineering and science. The course contains many practical applications and examples. **There is very little math used and all theories are kept to general principles.**

### The topics in this course will include:

- ❖ **An overview on the basics of corrosion engineering and science that apply to aerosol containers:** No difficult math or theories, just useful, applicable basic knowledge to help you understand why and how aerosol containers corrode.
- ❖ **An overview on the types of aerosol container corrosion:** Corrosion isn't just about rust. Find out about the other forms of corrosion that can cause your aerosol containers to fail.
- ❖ **An overview on how formula chemistry can cause or contribute to container corrosion:** Chemical composition determines if your formula will cause aerosol container corrosion. We will discuss the various facts and myths on formula chemistry and aerosol container corrosion.

- ❖ **An overview on controlling and preventing aerosol container corrosion:** There's no need to abandon a formula that is corroding because corrosion can be controlled and prevented in a number of different ways.
- ❖ **An overview on the various methods available to measure and predict aerosol container corrosion:** There are many ways to measure and predict the corrosion rates for aerosol containers. However, not all of these ways are valid. In this course we'll provide an overview of the scientific basics for these tests and how you use them with aerosol containers. We'll also tour the Pair O Docs® state-of-the-art electrochemical corrosion testing laboratory.
- ❖ **An overview on aerosol container construction and how this construction can cause and contribute to corrosion:** There are several types of aerosol containers and alternative aerosol packaging. Each type of container construction and alternative packaging can sometimes lead to specific types of corrosion.
- ❖ **An overview on why aerosol container corrosion is so random:** Aerosol container corrosion can be extremely random. It is not uncommon to observe containers completely free of corrosion with containers that are corroding; even though the product and the containers are from the same manufacturing batches. We will discuss the various metallurgical factors that cause container corrosion to be random.

This course is participant-focused, in that we adapt each course based on those attending. The Pair O Docs® Professionals Elements of Aerosol Container Corrosion course uses a variety of Continuing Professional Education learning techniques such as group projects, technical dialogue, question and answer "panel" discussions, plus plenty of opportunities to discuss your own corrosion stories with others in the class. We have over **200 examples** of a) aerosol containers b) aerosol container coatings, c) aerosol container anomalies, and d) aerosol container corrosion to help illustrate and reinforce the principles discussed in the course.

**The course will be held at the University Research Park in Madison, Wisconsin on October 6 & 7, 2009.** The University of Wisconsin, University

Research Park is located in a 200 acre park-like setting on the west side of Madison. Numerous hotels, shopping centers, restaurants, and theatres are conveniently located near the University Research Park. Our website [www.pairodocspro.com](http://www.pairodocspro.com) contains a link for a listing of the [Madison hotels and motels](#) close to the Pair O Docs® Professionals office and laboratory.

The University Research Park is a 25 to 30 minute drive from the Madison airport. There are several daily flights between Madison and the Milwaukee and Chicago O'Hare airports. The drive to the Park from the Milwaukee airport is approximately 1.5-hours, and approximately 3-hours from the Chicago O'Hare airport. Our website [www.pairodocspro.com](http://www.pairodocspro.com) contains a map and driving directions to the Pair O Docs® laboratory and office.

## **Course enrollment is very limited to encourage maximum participant participation and learning.**

### **Course Instructor:**

Dr. Stephen Tait is the chief science officer & principal consultant for Pair O Docs® Professionals L.L.C. in Madison, Wisconsin. He has over **30 years of industrial experience** in corrosion control, corrosion prevention and testing, and has conducted research in corrosion prevention and control and electrochemical corrosion testing for over 30 years. Dr. Steve Tait is one of eighteen certified corrosion specialists in the world who are also **certified** to develop **corrosion inhibitors**. He is an **industry leader** in electrochemical corrosion testing and the application of reliability engineering to aerosol and consumer packaging.

Dr. Tait is the **inventor** of the Tait Cell, GEN2, GEN3 and GEN4 electrochemical cells for electrochemical corrosion testing. He also has **patents** on corrosion inhibitors, electronic equipment for corrosion testing, and a device for measuring crevice corrosion.

Dr. Tait was an adjunct full professor at the University of Wisconsin from 2000 to 2003. He has taught chemistry, chemical engineering, materials engineering, and corrosion engineering courses for over 30 years at universities, continuing professional education organizations and for Pair O Docs Professionals.

He is the author of the book **An Introduction to Electrochemical Corrosion for Practicing Engineers and Scientists**, along with numerous Chapters and articles on corrosion, and writes the monthly column, **Corrosion Corner**, for *Spray Technology & Marketing* magazine.

Dr. Tait has a bachelor's degree in chemistry, an M.S. in chemical engineering, and a Ph.D. in materials engineering. He is a member of ASM International (ASM), the NACE International (formerly the National Association of Corrosion Engineers) and the Electrochemical Society.

#### **Course Administrator:**

Dr. Susan Tait is the executive director and principal educator for Pair O Docs® Professionals L.L.C. in Madison, Wisconsin. She has over 35 years teaching experience and specializes in the continuing professional education of engineers and scientists.

Dr. Susan Tait has a bachelor's degree in physics, an M.S. in administrative leadership, and a Ph.D. in Urban Education with a minor in physics and statistics.

#### **Cancellation Policy**

Substitutions can be made at any time for registered participants. A 25% cancellation fee will be assessed against tuition refunds for cancellations made prior to September 28, 2009. Tuition will not be refunded for no-shows and cancellations made after September 28, 2009.

#### **Other course locations**

**We can schedule a different time or arrange to have the course taught at your location if 6 or more of your personnel are interested in taking this course.** Please contact us at 608 441 2792, or at [rustdr@pairodocspro.com](mailto:rustdr@pairodocspro.com) for a proposal and scheduling.

**Please use the registration form on the next page to enroll in this course. You can either mail it or fax it to 608 441 2790.**

**Please call Dr. Susan Tait at 608 441 2792 or email [rustdr@pairodocspro.com](mailto:rustdr@pairodocspro.com) for more information.**

## Registration Form

### THE ELEMENTS OF AEROSOL CONTAINER CORROSION

October 6 & 7, 2009 in Madison, Wisconsin

(Please complete and return to the address or FAX given below)

Name (Mr./Ms./Dr.) \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone (\_\_\_\_) \_\_\_\_\_ Fax (\_\_\_\_) \_\_\_\_\_ email \_\_\_\_\_

#### Tuition Payment Information:

**Mail to:** Pair O Docs® Professionals L.L.C.

510 Charmany Drive, Suite 55

Madison, WI 53719

**Fax to:** 608 441 2790

Enclosed is a check **for U.S. \$995.00/person** payable to Pair O Docs® Professionals L.L.C.

Attached is a copy of our company Purchase Order number: \_\_\_\_\_  
Please attach a copy of the purchase order to this form. **Please note that the tuition must be paid prior to October 6, 2008.**

I am paying with AMEX, Master Card or Visa (please circle the type of charge card)

Name on the charge card (please print) \_\_\_\_\_

Card number \_\_\_\_\_ Expiration date \_\_\_\_\_

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