

Q2-2007

IN THIS ISSUE:

- BREAKING DOWN THE BARRIERS: Si-COAT HVIC APPLICATION AUTOMATION
- Si-COAT HVIC AS AN OEM COMPONENT
- 2007 INMR WORLD CONGRESS & EXHIBITION
- 5 YEARS OF HARD WORK AND DEDICATION
- MEDIEVAL TIMES

Breaking Down the Barriers: Si-COAT HVIC Application Automation

End-users of Si-COAT High Voltage Insulator Coating (HVIC) are enthusiastic about the product, but getting the liquid product onto the insulators has always been the greatest hurdle to overcome. This issue becomes even more pronounced with the thousands upon thousands of insulator discs that need to be coated on transmission or distribution lines.

The world's first ever use of RTV silicone High Voltage Insulator Coating (HVIC) on new construction lines was pioneered in 1997 by KAHRAMAA (formerly MEW) of Qatar, CSL Silicones Inc. and Areva T&D (formerly Alstom T&D). This pioneering initiative drew from KAHRAMAA's major objective to improve the reliability of their power system and CSL's vision for the future of its Si-COAT HVIC. The two 132 kV lines erected were part of the Phase IV



expansion of Qatar's transmission system. These two lines feed Qatar's Western Oil Fields – they run through the sand dune desert and the Sabkha areas and are exposed to high carbon black pollution from gas/petroleum flares in some areas.

Prior to 1997, the use of HVIC was limited to a maintenance mentality largely for substations. Small-scale experimental use had taken place on transmission lines as early as 1991, and it was on the proof of success of these initial applications that confidence was instilled for wider application on new-construction lines.

CSL has long-promoted the use of HVIC on lines as part of its founding ambition for the technology. Si-COAT HVIC was designed to suppress leakage current to near zero levels over the long term without needing any maintenance. Through such features, the reliability and economics of HVIC on lines are very favourable.

Ali Ahmed al-Jomali of KAHRAMAA reported at the INMR 2007 World Congress (see *article on page 3*) that since commissioning in 1997, the coated lines have operated without any pollution-related flashover and, more significantly, without any insulator maintenance whatsoever.

For this project, three qualified spray technicians coated thousands of open profile toughened glass insulator discs, using additional unskilled labour for insulator preparation and packaging. This method yielded a productivity rate of about 1000 discs coated per 10-hour day.



The manual application of Si-COAT HVIC to thousands of insulator discs in 1996 for KAHRAMAA's Phase IV Transmission Expansion Project

(continued on page 2)

Breaking Down the Barriers (continued)...



The success of this project has spawned additional projects for the coating of ceramic (porcelain or toughened glass) insulators on both new-construction and existing lines, mainly in the Middle East and Europe (see "Pre-Coated Insulators," *Coverings Q2 2004*; "The Advent of Pre-Coated Insulators," *Coverings Q2 2005*; and "The Italian Commitment," *Coverings Q2 2006*).

The rate of adoption of Si-COAT HVIC for use on transmission and distribution lines has been accelerating in recent years. There is now a requirement for significantly greater throughput rates of coated insulators than can be afforded by the original manual methods devised by CSL.

Since 2003, CSL has been working on a prototype for automating the application

of Si-COAT. In February 2005 a Patent Cooperation Treaty (PCT) Application (registration number 60/655,893) was filed by the Company for priority on the patentable concept of the automated application of a hydrophobic composition to the surface of electrical insulators.

The PCT Application and impending patent allows CSL the latitude to develop a device that will accommodate any type of insulator geometry. As well, the device can be configured to be stationary for factory use or mobile for use from within a 40-foot container stationed on the back of a truck or on the deck of a ship. The reasonable maximum coated insulator throughput with a single device is between 1 and 2 million discs per year (throughput rates alter when considering

other insulator geometries such as post, pin type, etc.). Even more attractive is the device's handsomely economical operation at throughput rates around 100,000 discs per year.

This technological advancement by CSL has been enthusiastically received by various end-users, contractors and insulator manufacturers around the globe and removes the single greatest barrier to wider adoption of Si-COAT HVIC for line use. CSL's plans on how to put forth the benefits of its mobile automated device to the world electric power industry are still under consideration. However, wider adoption of RTV silicone coatings for high voltage insulators is certain and with it will come exciting news to be shared in future editions of *Coverings*. 

Si-COAT HVIC as an OEM Component

CSL has just been asked to supply Si-COAT High Voltage Insulator Coating (HVIC) as an OEM component to coat air core reactors for a Brazilian producer of the devices. The company has three plants in Brazil that manufacture a wide range of products for medium power distribution. Their use of Si-COAT is driven by the need to overcome the shortcomings of conventional coatings such as cracking, breakdown under UV exposure, excessive surface preparation and poor electrical insulating characteristics.


Much of the interest in Brazil for CSL's RTV coatings originated a few years ago from a past project completed in Brazil, in which Si-COAT HVIC

was used on air core reactors. These reactors were originally manufactured by Trench Electric of Canada (now part of Siemens AG).

Use of Si-COAT HVIC on air core reactors began in 2000 when Mitsubishi Corporation (acting as sales agent for CSL) contacted Trench's instrument transformer division to introduce Si-COAT for use in their manufactured goods such as air core reactors, instrument transformers, earth fault protection devices, bushings, line traps, relay communication and protection and control equipment. There was keen interest to try Si-COAT because Trench customers often requested solutions for pollution-related insulator problems, and Si-COAT

seemed an ideal fit in terms of solving such problems. Samples were sent to Trench for testing and positive results led to a supply relationship between CSL and Trench.

Fast-forwarding to present-day Brazil, Trench reactors have been installed for some time. Local reactor manufacturing companies have taken notice of Si-COAT's success and want to duplicate that success on their own reactors, whether already installed in the field or to be manufactured.

Already, more than three dozen reactors are due to be returned to the manufacturer from the field for refurbishment within the next few months. Si-COAT HVIC will be instrumental in repairing the surface damage of these reactors. 

2007 INMR World Congress & Exhibition

For the second consecutive time, CSL had the honour of acting as a lead sponsor of the 2007 INMR (Insulator News and Market Report) World Congress & Exhibition on Insulators, Arresters & Bushings. This roughly bi-annual event took place at the Intercontinental Hotel in beautiful Rio de Janeiro, Brazil, from May 13th to 16th.

Apart from CSL's business development and international sales staff, other participants of the CSL delegation included **Brian ADAMI** of Energy Northwest, USA; **Nilton dos SANTOS FILHO** of CEMIG, Brazil; **Armando Isaac NIGRI** formerly of FURNAS, Brazil and presently Sr. Consultant LT's Consultoria e Servicos, Brazil; and **Nuno SILVA** of APLEIN in Portugal.

Messrs. Adami, dos Santos Filho and Nigri have all been long time users of Si-COAT High Voltage Insulator Coating (HVIC) and have acted as champions and ambassadors for this unique technology in their organizations. At the INMR 2005 World Congress in Hong Kong, Mr. Adami spoke of his extensive experience with the product and was present this year to offer a practical perspective on Si-COAT to fellow Congress attendees.

Mr. dos Santos Filho and Mr. Nigri both studied Si-COAT HVIC extensively for CEMIG and FURNAS respectively, and discovered the product's technical and economic merits. This collective experience of more than 10 years was presented at the Congress in two separate 30 minute presentations. Written papers are available through INMR (www.inmr.com) in the conference proceedings. Mr. Nigri's presentation was very exciting and revealed Si-COAT's outstanding totally maintenance-free performance for over 6 years under ± 600 kV HVDC at the FURNAS substation at the Itaipú hydroelectric plant. Itaipú is the largest power plant on earth with 14,700 MW of capacity.



CSL representatives busy answering questions about RTV Silicone Coatings

A third paper and presentation was delivered by **Faisal HUDA**, newly appointed President of CSL Silicones Inc. The subject matter covered by Mr. Huda provoked thought and debate amongst the audience as issues extending beyond just reliability were introduced; Si-COAT HVIC not only improves reliability through fewer faults as a result of the near-elimination of leakage current, but this leakage current suppression further lends favourable economics and CO₂ offset to the utilities that employ it. A copy of the paper, also presented at the INMR 2005 World Congress to an Asia-centric audience, is available online: www.si-coat.com/papers/INMR_Conference_2005_paper_HUDA.pdf.

Another major user and experienced researcher of RTV silicone coatings, **Emmanuel THALASSINAKIS** of Public Power Corporation, Greece, reported on the performance evaluation of these coatings at the substations and transmission lines on the island of Crete. He mentioned Si-COAT HVIC numerous times as an

example of an RTV silicone coating with top marks in quality, durability and overall performance.

The 2007 Congress was unique in its greater focus on RTV silicone coatings for high voltage insulators. Past Congresses had been heavily flavoured with discussions of composite insulator technology. While still a pertinent subject, much focus shifted away from composites to RTV coatings based on nearly 20 years of flawless performance, at least in the case of Si-COAT. In total, five papers and presentations on RTV silicone coatings were delivered at the Congress by industry users ranging from South America to Europe to the Middle East. Of these, four made direct mention of Si-COAT by CSL Silicones Inc. No other manufacturers were mentioned.

The focus on RTV silicone coatings spilled out of the conference rooms and onto the exhibition floor where hundreds of visitors passed by the Si-COAT booth. The booth was managed by **Saira HUDA** and

(continued on page 4)

2007 INMR World Congress & Exhibition (continued)...


Panos MELETACOS, both members of CSL's international sales staff. Questions were answered, healthy debate raised and explanations given, while in the background of the booth a DVD was showing CSL's recent Australian venture – the Siemens-Basslink HVDC Converter Project. The 12 minute video's eye-catching graphics and slick soundtrack drew an audience, many of whom got their first glimpse of how a turnkey Si-COAT project is conducted from setup to demobilization.

Generating even greater interest was Seves-Sediver's display of insulators factory coated

with Si-COAT HVIC. The pristine and flawlessly coated insulators were displayed in enticing, custom-fabricated clear cases, prompting some onlookers to remark how the insulators reminded them of perfect little Fabergé eggs.

Along with the technical symposium and exhibition, the Congress also gave everyone an opportunity to engage in local culture. In between hobnobbing and sharing ideas, insights and experiences, key movers and shakers of the insulator industry had the opportunity to experience outstanding Brazilian cuisine rich in flavour and


abundance. As well, Brazilian dancers and entertainers livened the gala dinner.

By the close of the conference, there was palpable curiosity and interest generated among conference participants in what Si-COAT could offer, especially among South American power companies and insulator manufacturers. At the end of the day, Rio proved a fortuitous Congress location for Si-COAT, and this has already led to far-reaching business development in this burgeoning continent south of the equator. 

5 Years of Hard Work and Dedication

We are proud to announce that **Karen YOSHIDA**, Manager of International Si-COAT Sales, has completed 5 years of service with CSL Silicones. Karen started with CSL in May of 2002 and has since made many significant contributions to the advancement and maturity of the company.


Karen's ability and willingness to tackle any challenge or obstacle makes her a highly valued employee. Her efforts and hard work are greatly appreciated.

Karen, we look forward to working with you for years to come. Thank you. 



Medieval Times

On April 21st, excited CSL employees boarded a bus en route to Medieval Times in Toronto. CSL employees and their families enjoyed a "medieval experience" complete with paper crowns coloured to match our courageous Knight, a four course

feast (served without utensils!) and an entertaining show full of thrills and excitement. Both those who had and had not seen the dramatic performance before were extremely pleased with the outing. Overall, it was a great day and a great experience to share with each other. 



© 2007 CSL Silicones Inc.
All trademarks registered.
All rights reserved.

csl silicones inc.

144 Woodlawn Road West
Guelph, ON N1H 1B5
CANADA

tel: +1 (519) 836-9044
fax: +1 (519) 836-9069
web: www.si-coat.com

SUGGESTIONS:

Suggestions and comments are always welcome. Please send to: info@cslsilicones.com