

65th (Tokyo), 66th (Osaka)  
**SUGA ACADEMIC SEMINAR: WEATHERING  
PROGRAM 2017**

TIME	<b>Tokyo (65th)</b> Date: November 22, 2017 (Wed) Location: Arcadia Ichigaya	<b>Osaka (66th)</b> Date: November 29, 2017 (Wed) Location: Osaka International Convention Center
10:00 – 10:10	Introduction by <b>Shigeo Suga</b> , Director-General of Suga Weathering Technology Foundation	
[1] 10:15 – 11:05	<b>The Evaluation Technology of Fluoro Polymer Paints by New Accelerated Weathering Test</b>  <b>Shun Saitoh</b> Strategy headquarters, Development Division, Asahi Glass Co., Ltd.	
[2] 11:10 – 12:00	<b>Aiming for new Textile Industry – Water Free Dyeing and Smart Textile</b>  <b>Teruo Hori</b> Visiting Professor , Headquarters for Innovative Society-Academia Cooperation, University of Fukui	
12:00 – 13:00	Lunch	
[3] 13:00 – 14:15	<b>Quantifying Specimen Temperature during Artificial Weathering – The Sol-Air Model Revisited</b>  <b>David M. Burns</b> Senior Research Specialist, Weathering Research Center, 3M Corporate Research Analytical Laboratory	
[4] 14:20 – 15:10	<b>Movement on Environmental Testing for Ship and Marine Structure/Equipment</b>  <b>Koichi Yoshida</b> Visiting professor, Center for Oceanic Study and Integrated Education (YNU/COSIE), Yokohama national University	
	Break Time	
[5] 15:25 – 16:15	<b>Monitoring Technology for Automobile Corrosive Environments</b>  <b>Yasuhiko Saijo</b> Engineer, Technology Development Division 9, Department 4, Automobile R&D Center, Honda R&D Co., Ltd.	
[6] 16:20 – 16:50	<b>Recent Trend of Accelerated Weathering Tests and Accelerated Corrosion Tests Standards in ISO, IEC and ASTM</b>  <b>Shigeo Suga (Tokyo)</b> President & CEO, Suga Test Instruments Co., Ltd. <b>Hideo Kita (Osaka)</b> General Manager, Calibration Department, Suga Test Instruments Co., Ltd.	
17:10 – 18:40	<b>Social gathering</b>	

### **Shun Saito**

It has been 30 years since AGC first commercialized the fluoropolymer for paints. Within this period, it has been used in many architectural buildings, and the durability of the paint and polymer itself has been proven with the actual results on the buildings. Herein, alongside the mechanism of photocatalysis reaction by titanium dioxide, the relativity between exposure test and accelerated weathering test are being discussed.

### **Teruo Hori**

An ideal dyeing system using supercritical carbon dioxide in replace of water as dyeing medium has been proposed in 1991 and began to industrialize in 2009 for polyester knit fabrics. In this paper the mechanism of supercritical fluid dyeing will be made clear and the application of this system for the other fibers and for the functionalization of general fibers will be introduced. As a new generation of textile industry so-called "smart textile" has attracted. In this paper the recent investigations of smart textile will be introduced and the elemental technologies for making "smart textiles" will be discussed, such as conductive fibers, conductive paste, electric sensors and devices as well as the connecting methods of each parts.

### **David M. Burns**

The major industrial application of artificial weathering is to estimate the functional stability and service life of products exposed outdoors in-service. In order to reliably estimate the service life of a product one must understand its degradation kinetics. This requires quantitative information on the specimen temperature during exposure. The most common model for accurately modeling surface temperature under radiant exposure to sunlight is the Sol-Air model. This presentation provides a comprehensive engineering evaluation of the Sol-Air model and describes its practical application in artificial weathering tests.

### **Koichi Yoshida**

Ship and marine structure are exposed to various marine environment, from tropical sea to polar region. These structures usually have, in their inside, power source, and in case of ships, have propulsion system, and these power sources would be a source of vibration. Equipment, systems and materials used in these ships and structures shall withstand such wide range of environment, such as temperature, humidity, exposure to sun light, wind and weather, ice and snow, and then shall work to fulfill the required performance. Therefore, there are specified environmental testing for the equipment, systems and materials used on ships and marine structures, which will be explained in this talk. Furthermore, those for near future polar water route (arctic route) will be presented.

### **Yasuhiko Saijo**

In order to predict the lifespan of new structures or materials within the automobile development process, it is important to attempt to develop a correlation between accelerated corrosion tests and corrosion behavior in the field. Considering the mechanism of steel corrosion, Honda developed technology for the quantification of automotive corrosion environments from the rust reduction current detected by using a developed sensor. The development faced the challenge that values calculated based on Faraday's law did not match actually measured values for the mass loss of iron due to the influence from the resistance of rust existing between electrodes on the sensor. As a result of this research it was found that the values calculated from the sensor measurements matched the mass loss of the test specimen on a vehicle in field test.

### **Shigeo Suga / Hideo Kita**

Both the accelerated weathering tests and the accelerated corrosion tests are related to various industries, and these tests are specified in every field by international standards such as ISO, IEC and ASTM. Sometimes the specification of the same test method is described differently depending on standards since the experts' interpretation and discussion agreement about the test method are different in each technical committee. Suga Test Instruments Co., Ltd. participates in the related international standardization discussions in each industrial field and tries to have the test methods that are described differently harmonize. In this talk, we introduce our approaches and issues about the accelerated weathering test methods and the salt spray test methods as recent cases.