

HINO Taro, “Establishment of Electrical Insulating Materials Engineering”

1. Biography

1927-5-30 Birth, 1953-3 Tohoku University

1960-3 Tokyo Institute of Technology (Dr.Eng)

1973 Prof.of Tokyo Institute of Technology

1988 Professor Emeritus of Tokyo Institute of Technology,

Professor of Kanagawa University,

1998 Retirement of Kanagawa University

2015-11 Pass away (88-years old)

The Order of the Sacred Treasure, Gold Rays with Rosette.



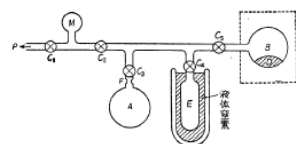
2. Summary

HINO Taro made a great contribution to the development of electrical insulation technology for power-cable Engineering, particularly, in the field of Evaluation of electrical insulating materials. Mass-spectrometer method for the evaluation of thermal deterioration of insulating materials, thermally stimulated method for evaluation of electrical insulating property of plastics, and development of ultra-thin polymer films by Langmuir-Blodgett technique are his main achievements.

3. Research Summary

3.1 Development of accelerated thermal deterioration test method using mass-spectroscopy

For supplying stably high-electric power, development of the technique that can evaluate deterioration of insulating materials in a short time was crucially important. In 1959, Hino proposed an accelerated thermal deterioration test method using mass-spectroscopy, by which very small amount of gases that are generated from insulating materials owing to the thermal deterioration was well analyzed. The effectiveness of his idea was well accepted in the world. Figure shows a schematic diagram of gas-collection apparatus.

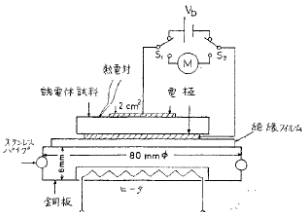


3.2 Development of Thermally stimulated Current method

for evaluation of electrical insulating materials.

Hiro developed a thermal stimulated current (TSC) measurement method for evaluating

electrical insulating properties of solids. Based on his experimental and theoretical analytical methods, thermally stimulated currents that are generated from insulating materials during thermal heating process have been well analyzed, in terms of charge behaviors in insulating materials. The developed technique is



now standardized as JIS K7231-1994 (Testing method for thermally stimulated current of plastic films). Figure shows the measuring circuit of TSC, developed by Hino.

3.3 Preparation of ultra-thin polyimide Langmuir-Blodgett films for electrical insulation of high electric field.

Hino succeeded in the preparation ultra-thin polyimide Langmuir-Blodgett films, and demonstrated the effectiveness of the use of developed thin films in devices under high electric field. This work opened a new way for electrical insulation engineering as well as organic molecular electronics. Figure reports the impact of his work (Asahi Shimbun, April 1, 1986).



4. Remarks

Taro Hino was grate researcher as well teacher. His sprit on research and education inspired young students and researchers once who joined in his school. He was very strict about research works, experimental and theoretical works, but always encouraged students. He devoted his life to research and education regarding electrical insulation engineering, and even after he retired from universities, he continued experimental works in his home.

References

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