

PROGRAMME
OF III INTERNATIONAL SYMPOSIUM ON TRIBOCHEMISTRY
Cracow, Poland, 10-12 September 2001

Monday, 10th September

10- 10 ²⁰	Opening of the Symposium C. Kajdas, Warsaw Technical University, Poland „Tribocchemistry in Poland”
<i>Morning Session: Tribocchemistry of Lubricating Base Oils and Additives</i> <i>Chairman: Dr. A. Erdemir</i>	
10 ²⁰ - 10 ⁴⁵	W.T. Tysoe, University of Wisconsin, Milwaukee, USA „ <i>Machining Lubricants: What They Do and How They Work</i> ”
10 ⁴⁵ - 11 ¹⁰	W. Liu and K.Ye, Laboratory of Solid Lubrication, Lanzhou, China „ <i>Lubricating and Tribocchemical Behaviours of Phosphazenes with Various Molecular Structures</i> ”
11 ¹⁰ – 11 ³⁰	Coffee Break
11 ³⁰ - 11 ⁵⁵	M.J. Furey ¹ , C. Kajdas ² , R. Kempinski ² , B.S. Tripathy ³ , J.J. Valentino ⁴ and B. Vick ¹ ¹ Virginia Tech., USA ² Warsaw Technical University, Poland ³ Federal Mogul, Ann Arbor, USA ⁴ U.S. Army TACOM, USA „ <i>Condensation – Type Monomers and Tribopolymerization</i> ”
11 ⁵⁵ – 12 ²⁰	A.J. Groszek Microscal, England “ <i>Role of Adsorption in Lubrication</i> ”
12 ²⁰ – 12 ³⁵	M. Makowska, J. Molenda and W. Tuszyński Institute of Terotechnology, Radom, Poland „ <i>Tribocchemical Conversions of Zinc Dialkyldithiophosphate under Extremely Different Pressure Conditions</i> ”
12 ³⁵ – 12 ⁵⁰	M. Majzner, C. Kajdas Warsaw Technical University, Poland “ <i>Tribocchemical Reactions of Carboxylic Acids</i> ”
12 ⁵⁰ – 14 ³⁰	Lunch Break

Monday, 10th September

Afternoon Session: Tribochemistry of Lubricating Base Oils and Additives Chairman: Prof. W. Liu	
14 ³⁰ - 14 ⁵⁵	L. Yu and Q. Xue, Institute of Chemical Physics, Lanzhou, China <i>‘Tribological Behaviours of Rapeseed Oil with Additives’</i>
14 ⁵⁵ - 15 ²⁰	I. Minami and S. Mitsunume, Kochi University of Technology, Kochi, Japan <i>„Antiwear Mechanism of Phosphorous Containing Compounds in Vegetable Oils”</i>
15 ²⁰ - 15 ³⁵	K.Y. Choi, A.Y. Grigoriev and N.K. Myshkin Belarus National Academy of Science, Gomel, Belarus Republic <i>„Analysis of Tribochemical Surface Damage by Impage Processing”</i>
15 ³⁵ - 15 ⁵⁰	X.Fu, Y. Liu, W. Yao Lanzhou Lube Oil R&D Institute, China <i>“The Effect Of Aging Process On The Formation Of Carbonate Particles During Preparation Of Overbased Calcium Alkylsalicylates”</i>
15 ⁵⁰ - 16 ⁰⁵	M. Przedlacki ¹ , C. Kajdas ¹ and W. Liu ² ¹ Warsaw Technical University, Poland ² Laboratory of Solid Lubrication, Lanzhou, China <i>“On Lubrication Mechanism of Fluorinated Alcohols in Steel/steel and Steel/Al Contacts”</i>
16 ³⁰ - 21 ⁰⁰	Wieliczka- salt mine

Tuesday, 11th September

Morning Session: Tribochemistry of Ceramics Chairman: Dr. S. Hsu	
9 ⁰⁰ – 9 ²⁵	A. Erdemir Argonne National Lab., USA „The Role of Tribochemistry in Superlow-friction and Wear Properties of Hard Carbon Films”
9 ²⁵ - 9 ⁵⁰	K. Hiratsuka, M. Asakawa, A. Funakoshi and M. Takayo Chiba Institute of Technology, Japan „Effect of Impregnation of Iodine Compound in Anodic Oxidation Film on Aluminium”
9 ⁵⁰ – 10 ¹⁵	S. Lagerge ¹ , S. Partyka ¹ , G. Chanveteau ¹ and A.J. Groszek ² , ¹ University Montpellier II, France ² Microscal Ltd., UK „Assessment of the Hydrophobic-hydrophilic Partition of Heterogeneous Solid Surfaces: Investigation on Silicon Carbide, Mineral Oxides and Carbonated Supports”
10 ¹⁵ – 10 ³⁰	D. Bieliński, ¹ A. Wróbel ² ¹ Technical University of Łódź, Poland ² Polish Academy of Science, Łódź, Poland “Tribology of Ultra High Hardness CVD Coatings Prepared from a Single-source Precursor”
10 ³⁰ – 11 ²⁰	Coffee Break and Poster Session <hr/> <p>Pleskachevsky, A.L. Zaitsev and V.P. Kirilenko Belarus National Academy of Science, Gomel, Belarus Republic „Physics and Chemistry of Phenolic Resins Wear at Sliding Friction in Water-Glycol Solutions”</p> <p>M. Mizerski, G. Celichowski University of Łódź, Poland “Tribological Properties of Polybutoxyglycol Dithiophosphates”</p> <p>K. Koralewski and G. Celichowski University of Łódź, Poland „Effect of Temperature, Sliding Speed and Load on Zinc Dialkyldithiophosphate Antiwear Properties in Friction Contact of Partially Stabilized Zirconia”</p> <p>D. Bieliński and P. Głąb Technical University of Łódź, Poland „Tribological Effect of Chloroparaffin Wax Addition to NR-Modification of the Surface Layer”</p>

	<p>B. Porankiewicz Academy of Agricultural, Poznań, Poland „Tribochemical Reactions of Cutting Edge Material While Secondary Wood Products Cutting”</p> <p>A . Bocho-Janiszewska, W. Sulek Technical University of Radom, Poland “Influence of 8-Hydroxyquinoline Complexes with Metals as Lubricant Additives on Friction Process”</p> <p>M. Celuch, W. Sulek Technical University of Radom, Poland „Effect of Alcohols on the Tribological Behavior of Oxide Ceramics”</p>
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Tuesday, 11th September

<p><i>Morning Session II: Micro/Nanotribology</i> Chairman: Prof. K. Hiratsuka</p>	
11 ²⁰ – 11 ⁴⁵	<p>S. Hsu National Institute of Standards and Technology, Gaithersburg, U.S.A. „Nanoploughing , A New Way To Study Tribochemistry From Mechanical Disruption Of Surface Bonds”</p>
11 ⁴⁵ – 12 ¹⁰	<p>R. Szoszkiewicz¹, B. Huey², D.V. Kolosow², G.A. Briggs² and A.J. Kulik¹ ¹EPFL, DP IGA, Lausanne, Switzerland ² Oxford University, Department of Materials, UK „Adhesion Hysteresis and Ultrasonic Force Microscopy”</p>
12 ¹⁰ - 12 ²⁵	<p>G. Celichowski, J. Grobelny, M. Cichomski University of Łódź, Poland „Influence Of Methyl Group Concentration In Hybrid Inorganic-Organic Monolithic Silica Films On Friction Coefficient”</p>
12 ⁴⁵ – 14 ³⁰	Lunch Break

Tuesday, 11th September

<i>Afternoon Session: Surface Physicochemical Phenomena in Friction Process</i> Chairman: Prof. W.T. Tysoe	
14 ³⁰ – 14 ⁵⁵	I.I. Singer, Naval Research Lab., Washington, USA „Tribochemistry and Low Friction Sliding Contacts”
14 ⁵⁵ – 15 ¹⁰	Q. Xue, P. Zhang and W. Liu, Institute of Chemical Physics, Lanzhou, China „Tribological and Tribochemical Properties of Some LB and Self-Assembled Films”
15 ¹⁰ – 15 ³⁵	K. Hiratsuka and M. Tsuruta Chiba Institute of Technology, Japan „Reduction of Carbon Dioxide by the Rubbing of Metals”
15 ³⁵ - 16 ⁰⁰	Coffee Break
16 ⁰⁰ – 16 ²⁵	A. Faucitano, General Chemistry Dep., University of Pavia, Italy „EPR Spectroscopy of Free Radicals from Perfluoroethers and Poly(perfluoroethers)
16 ²⁵ – 16 ⁴⁰	T. Wasilewski, W. Sułek Technical University of Radom, Poland „Application of Compounds which can Form Liquid-Crystalline State as Lubricant Additives”
16 ⁵⁵ – 17 ¹⁰	D. Ozimina Technical University of Kielce, Poland „Study of Mechanism and Increased Activity of Antimony Thioantimonate in Different Tribological Systems”

Wednesday, 12th September

<p>Morning Session II: Tribophysics Chairman: Dr I.I. Singer</p>	
9 ⁰⁰ – 9 ²⁵	<p>K. Nakayama, National Inst. of Advanced Ind. Science and Tech., Tsukuba, Japan „Surface Charging and Tribo-Microplasma Formation”</p>
9 ²⁵ – 9 ⁵⁰	<p>B. Vick¹, M.J. Furey¹, C. Kajdas² ¹Virginia Tech., USA ²Warsaw Technical University, Poland „Modeling of Thermionic Emission in Sliding Contact”</p>
9 ⁵⁰ – 10 ¹⁵	<p>R. Kempinski¹, P. Malosse², G.J. Molina³, M.J. Furey², C. Kajdas¹ and B.S. Tripathy², ¹Warsaw Technical University, Poland ²Virginia Tech., USA ³Georgia Southern University, Statesboro, USA „Effect of Triboemitted Particles on the Tribological Behaviour of Selected Monomers”</p>
10 ¹⁵ – 10 ³⁰	<p>C.J. Molina¹, C. Kajdas² and M.J. Furey³ ¹Georgia Southern University, Statesboro, USA ²Warsaw Technical University, Poland ³Virginia Tech., USA „Importance of Low-energy Triboelectrons for the Initiation of Tribochemical Reactions”</p>
10 ³⁰ - 11 ¹⁰	<p>Coffee Break and Poster Session</p> <p>Z. Pawlak Utah State Health Lab., USA „Micellar Structure of Lubricating Oils”</p> <p>M. Ziółkowska, J. Frydrych Central Petroleum Lab, Warsaw, Poland „Influence of the Anticorrosion Additive Sorption Process on the Tribological Durability of the Formed Layer.”</p> <p>J. Molenda, C. Kajdas, M. Grądkowski Institute of Terotechnology , Radom, Poland „Study of Chemical Nature of Organic Compounds Forming During Friction on Steel Surface Lubricated by Olefins.”</p> <p>A. Matuszewska, M. Grądkowski Institute of Terotechnology , Radom, Poland „ Investigation of Tribological Performance of AW/EP Additives under Different Thermal Conditions.”</p> <p>M. Makowska, C. Kajdas, M. Grądkowski Institute of Terotechnology , Radom, Poland „Interactions of n-Hexadecane with Iron Surface under Friction Conditions.”</p>

	<p>L. Wojtczak, G. Wiatrowski, J. Rousseau University of Lodz, Poland „One –asperity Stick – slip Motion from the Phonon Theory of Friction – the Analytical Description”</p> <p>J. Grobelny, G, Celichowski, M. Cichomski, K. Koralewski University of Lodz, Poland „Friction Force Microscopy Study of Porous Methylsilica Thin Films”</p>
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Wednesday, 12th September

<p><i>Morning Sesion II : Tribochemistry of Additives</i> <i>Chairman: Prof. M. J. Furey</i></p>	
11 ¹⁰ – 11 ³⁵	<p>T. Ren Shanghai, China “The Tribochemical Study of N-containing Heterocyclic Compounds as Lubricating Oil Additives”</p>
11 ³⁵ - 11 ⁵⁰	<p>S. Plaza, M. Mizerski, W. Wesołowski University of Łódź, Poland “Tribological Properties of Some Polyalkoxy Glycol Dithiophosphate Derivatives”</p>
11 ⁵⁰ - 12 ⁰⁵	<p>V.V. Konchits, S.V. Korotkevich, Yu. E. Kirpichenko, N.K. Myshkin Belarus Academy of Science, Gomel, Belarus “Lubricating Properties of Organic Deposits Formed by Lubricants on Heated Metal”</p>
12 ⁰⁵ – 12 ²⁰	<p>A. Kulczycki¹, C. Kajdas² ¹Central Lab. of Petroleum, Poland ²Warsaw Technical University, Poland „Influence of Surface Coarseness on Tribochemistry of AW/EP Layers Produced by Gear Oils.”</p>
12 ²⁰	Closure of the Conference