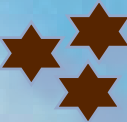




2007 Insensitive Munitions & Energetic Materials Technology Symposium

“New Programs, New Policies, New Strategies
Leading To New Joint Solutions”



Doral Golf Resort and Spa
Miami, Florida
October 15-18, 2007

Monday, October 15, 2007



4:30 pm- 7:00 pm
5:00 pm - 7:00 pm

Registration
Reception

Tuesday, October 16, 2007

Conference Chair: Lori Nock

8:00 am	Welcome
8:05 am	Keynote Intro
8:10 am	Keynote Address: COL Ole Knudson, <i>Project Manager for Combat Ammunitions Systems Picatinny</i>
8:40 am	Awards



Session Chair: Andrew Wilson

9:00 am	Emerging Trends in Energetic Materials <i>Ruth Doherty, Ruth Doherty</i>
9:20 am	MSIAC Global Review of Accidents <i>Eric Deschambault, MSIAC</i>
9:40 am	US IM Policy Update <i>Matthew Beyard, OUSD (AT&L) PSA/LW&M</i>

10 am - 10:40 am
Break

2A- Explosives 1

2B- Policy

Session Chair: Paul Braithwaite

Session Chair: Don Porada

10:40 am	A Melt Cast Composition with Remarkable IM Properties <i>Per Sjoberg, EURENCO Bofors AB</i>
11:00 am	Next Generation IM Mortar Fill - Optimized PAX-33 Development and Characterization <i>Curtis Teague, BAS Systems/Holston AAP</i>
11:20 am	Early Development of an Innovative Melt Pour Explosive <i>Alex Paraskos, ATK Launch Systems</i>
11:40 am	Tailored Formulations for IM 155mm Artillery Shell Application <i>Bernard Mahe, EURENCO France</i>
12:00 pm	Development of an Alternate Binder for Composition C-4 <i>Paul Vinh, TACOM ARDEC</i>

10:40 am	The History and Future of the Navy Energetics Enterprise Providing Collaborative Solutions to the Warfighter <i>Roger Swanson, Naval Ordnance Safety & Security Activity</i>
11:00 am	UK Mod IM Insertion Strategy - The Route to a Safer Inventory <i>Alastair MacKichan, Charlcombe Associates LTD</i>
11:20 am	South Africa IM Program Overview <i>Johan Niemand, Armscor</i>
11:40 am	Smart Assessment and Testing of Munitions <i>Peter Barnes, Defense Ordnance Safety Group</i>
12:00 pm	A New Paradigm for R&D to Implement New Energetic Materials in Munitions <i>Richard Behrens Jr., Sandia National Laboratories</i>

12:20 pm - 1:20 pm

Lunch

3A-Processing 1

Session Chair: Scott McDonald

- 1:20 pm Development and Optimization of a Production Method for Manufacturing PAX-41
Virgil Fung, *BAE Systems*
- 1:40 pm Development of a Reproducible Process for Loading Spider Grenade Bodies with Picatinny Arsenal Explosive (PAX) - 41
David Strickland, *US Army-Picatinny*
- 2:00 pm A Safe and Effective Method to Remotely Mix Small Quantities of Energetic Compositions
Brad Cragun, *ATK Launch Systems*
- 2:20 pm Common Low-cost Insensitive Munitions Explosive Program to Replace Comp B
Charlie Patel, *PM-CAS*
- 2:40 pm RDX Nitration Facility Modernization
Florence Delacruz, *US Army RDECOM - ARDEC*



3B- Testing 1

Session Chair: Bruno Noguez

- 1:20 pm Sympathetic Detonation Tests with Concepts of Unitary Warheads for a Rocket System
Phillipe Chabin, *SNPE Materiaux Energetique*
- 1:40 pm Sensitivity of High Explosives against Shaped Charge Jets
Werner Arnold, *MBDA-TDW*
- 2:00 pm High-Velocity Fragment Impact Testing
Peter Haskins, *QinetiQ*
- 2:20 pm Munition Fragment Impact Testing and its use in the UK in IM Assessment and to Evaluate Risk
Michael Sharp, *MOD/DOSG*
- 2:40 pm Explosively-Driven Gas Gun for Fragment Impact Test
Vincent Tanguay, *DRDC Valcartier*

3:00 pm - 3:20 pm
Break

4A- Characterization

Session Chair: Per Sjoberg

- 3:20 pm Handling and Safety of Nano Aluminum
Ruth Schaefer, *ATK Launch Systems*
- 3:40 pm Synthesis Effects on Diaminoazoxyfurazan (DAAF) Explosive and Mechanical Performances
Elizabeth Francois, *Los Alamos National Lab*
- 4:00 pm Characterization of Aged Polymer Bonded Explosives; Deveopment of STANAG 4666
Ing. Wim P.C. de Klerk, *TNO Defense, Security and Safety*
- 4:20 pm Improvements in NC Processing using NIR Spectroscopy to Determine TV Content
G. Duncan Langlois, *ATK*
- 4:40 pm Characterization and Synthesis of Alpha Alane
Alexander Paraskos, *ATK Launch Systems*

4B-Modeling

Session Chair: Peter Haskins

- 3:20 pm Theory and Performance of New combined Effects Explosives
Ernest Baker, *US Army - ARDEC*
- 3:40 pm TEMPER Software from V1.0 to V2.0 (Toolbox for Engineering Models to Predict Explosive Reactions)
Pierre-Francois Peron, *NATO/MSIAC*
- 4:00 pm Hot Fragment Conductive Ignition Modeling for Energetic materials
Rohan Banton, *US Army Research Lab*
- 4:20 pm SIBEX: Shock Insensitive and Blast Enhanced Explosive, Modelling and Testing
Werner Arnold, *MBDA-TDW*
- 4:40 pm Insensitive Munitions Analytical Compliance System (I-MACS) Concept
George Thompson, *Chemical Compliance Systems, Inc.*

5:30 pm - 6:30 pm
6:30 pm - 8:30 pm

Reception
Dinner

5A- Explosives 2

Session Chair: Andrew Wilson

- 8:00 am
- 8:20 am USN Qualification of PBXW-14
Scott Walthour, *NSWCIHD*
- 8:40 am New Pressed Explosives with Improved Insensitive Munitions Characteristics
Jason McCary, *ATK Launch Systems*
- 9:00 am Pressed PBX Compositions Based on Nitro-Formal Energetic Plasticizer for HE/IM Charges
Yael Cohen-Arazi, *Rafael*
- 9:20 am Comparison of blast performance of the IM explosive PAX-28 variations
David Hunter, *General Dynamics*



9:40 am - 10:20 am
Break

5B- Mitigation

Session Chair: Vicki Brady

- 8:00 am Thermally Activated Venting System for IM
Michael Fisher, *Cornerstone Research Group*
- 8:20 am Minor Caliber Insensitive Munitions Reaction Mitigation Implementation
Luis Rodriguez, *Naval Surface Warfare Center Dahlgren*
- 8:40 am Pumice Layered with Projectile-resistant materials for Bullet Impact Mitigation
Jared Grover, *Naval Air Warfare Center Weapons Division*
- 9:00 am A Scientific Review of the Current State of IM Mitigation Devices for use with Rocket Motor Systems and the Future Development Outlook
Andrew Strickland, *Roxel*
- 9:20 am Development of Particle Impact Mitigation Sleeves to Reduced IM Response
Arthur Daniels, *US Army, RDECOM-ARDEC*

6A- RS-RDX

Session Chair: Dr. Ruth Doherty

- 10:20 am Influence of Particle Size and Specific Surface for Energetic Formulations
Paul Wanninger, *Rheinmetall Waffe Munition GmbH*
- 10:40 am
- 11:00 am Reduced Sensitivity RDX, A Review and an Update
Christian Spycykerelle, *EURENCO France*
- 11:20 am Reduced Sensitivity RDX (RS-RDX) Effect of Quality on the Shock Sensitivity of a Cast Cured PBX Formulation based on RS-RDX
Shinichi Matsuzaki, *NIPPON KOKI Co Ltd*
- 11:40 am Accelerated Aging Study of PBXN-109 Formulated with Insensitive RDX - link to 5731
Kerry Clark, *Naval Surface Warfare Center Indian Head Division*

6B- Testing 2

Session Chair: Kenneth Graham

- 10:20 am Cook-Off Mitigation Heat Rate Effects
Stanley DeFisher, *ARDEC*
- 10:40 am Cook-Off Mitigation Scaling Effects
Nausheen Al-Shehab, *US Army, RDECOM-ARDEC*
- 11:00 am Progress on Development of a Sub-Scale Fast Cook-Off Test
Kevin Ford, *NAWCWD*
- 11:20 am IM Rocket Motors Experiments in Support of Thermal or Impact Modelisations
Dominique Idelot, *Roxel France*
- 11:40 am IM and Performance Testing of DLE-C038
Robert Hatch, *ATK Launch Systems*

12:00 pm - 1:20 pm
Lunch

7A- Processing 2

Session Chair: Paul Wanninger

- 1:20 pm Slurry Coating Process for Nano-RDX produced by a Bead Mill
Rajen Patel, *US Army Picatinny*
- 1:40 pm Modeling and Simulation of Melt Cast Explosives
Anthony Si Stasio, *US Army- ARDEC*
- 2:00 pm Polyurethane Press- Tooling Components
John Centrella, *ARDEC-Picatinny*
- 2:20 pm A Study on the Grinding Process of HMX using Fluid Energy Mill
Joo Seung Chae, *Agency for Defense Development*
- 2:40 pm Extrusion of a Novel LOVA Propellant by TSE
Eli Shachar, *IMI-Israel*

7B- M795 Systems

Session Chair: Steve Nicolich

- 1:20 pm Common Low-Cost Insensitive Munitions Explosive Program to Replace TNT
James Rutkowski, *Office of the Project Manager for Combat Ammo*
- 1:40 pm The Characterization of IM Explosive Candidates for TNT Replacement
Brian Roos, *US Army Research Lab*
- 2:00 pm Manufacture of Explosive Ingredients and Compositions for the IM M795 Artillery Ammunition
Andrew Wilson, *BAE Holston OSI*
- 2:20 pm The Application of New IM Explosive Candidates in the M795 Projectile
Sanjeev Singh, *US Army-ARDEC*
- 2:40 pm IM HE Loading of 155mm Projectiles
Johan Dahlberg, *Eurengo Bofors AB*



3:00 - 3:20 pm

Break

8A- Propulsion 1

Session Chair: Nora Eldredge

- 3:20 pm Insensitive Propulsion Systems for Large Caliber Ammunition
Beat Vogelsanger, *NITROCHEMIE Wimmis AG*
- 3:40 pm Developments in Processing of IM Gun Propellants in the UK
Anne Marie Wilton, *BAE Systems*
- 4:00 pm Status of Reduced Vulnerability Gun Propellant and Production Capability
Pierre Archambault, *MSIAC*
- 4:20 pm Environmentally Friendly "Green" Propellant
Thelma Manning, *US Army RDECOM - ARDEC*
- 4:40 pm Insensitive Gun Propellants with Low Temperature Coefficient (LTC)
Dietmar Mueller, *Fraunhofer Institut Chemische Technologie (ICT)*
- 5:00 pm GUDN-Propellants and the Uniflex 2 IM Modular Charge System
Johan Dahlberg, *Eurengo Bofors AB*

8B- Testing 3

Session Chair: Melissa Hobbs

- 3:20 pm Test Data to Support the Explosive Survivability Protocol
Greg Glenn, *AFRL/MNME*
- 3:40 pm Improving the Survivability of Shoulder Launched Systems Against Fragment Attack
Tal Eliash, *RAFAEL*
- 4:00 pm Generic Hardware
Anthony Di Stasio, *US Army*
- 4:20 pm Qualification of an Enhanced Blast Explosive (DPX-6) According to STAN AG 4170
Oyvind Johansen, *Chemring Nobel ASA, High Energy Materials*
- 4:40 pm Development of Exploding Foil Initiators for Future IM
Gert Scholtes, *TNO Defense, Security and Safety*
- 5:00 pm FMU-139/B to AFX-795 and FMU-139B/B to Tritonal
Jen Duchow, *NAWCWD*

9A- Explosives 3

Session Chair: Wendy Balas

- 8:00 am
- 8:20 am LBR6 - A Novel Class 1.5D
Composition for Insensitive Explosive
Reactive Armo (I-ERA)
Yael Cohen-Arazi, *Rafael*
- 8:40 am
- 9:00 am Development and Filling of New
Insensitive Melt Pour Explosives for
120mm Direct Fire Ammunition
Brian Alexander, *BAE Systems*
- 9:20 am Development of Promising New Cast
Cure Explosives
Robert Hatch, *ATK Launch Systems*



9B-Systems

Session Chair: Stephen Struck

- 8:00 am Insensitive Munitions Test Results for
EFSS 120mm Rifled Mortar
Ammunition
Lee Jackson, *General Dynamics Ordnance
and Tactical Systems*
- 8:20 am IM Solution for Artillery Gun
Projectiles Crimped to a Cartridge
Case
Carl Campagnuolo, *SOCOM*
- 8:40 am
- 9:00 am Engineering Testing of the Denel 155
MM HE Insensitive Artillery Projectile
David Edmonds, *General Dynamics Ordnance
and Tactical Systems*
- 9:20 am IM Explosive Replacement Study for
the 2.75 Hydra M151 Warhead
Cynthia Buford, *Dynetics*

10A- Synthesis

Session Chair: Andrew Sanderson

- 10:20 am Synthesis and Characterization of
Potential TNT Replacements
Brad Sleadd, *BAE Systems*
- 10:40 am Synthesis of Ethyl 5 -
Tetrazolyldinitroacetate as a Key
Intermediate for
5-Dinitromethyltetrazole or
5-Dinitromethylidene-1,
4-Dihydro-1H-tetrazole
Kyoo-Hyun - Chung, *Inha University*
- 11:00 am Cleaner Manufacture of 2,4,
6-Trinitrotoluene (TNT) through
Improved Regioselectivity in the
Nitration of Toluene
Ross Millar, *QinetiQ Ltd.*
- 11:20 am Purity Advantages of FEF TNT
G. Duncan Langlois, *ATK*
- 11:40 am Synthesis and Characterization of
Energetic Thermoplastic Elastomers
by Using Controlled Free Radical
Polymerization
Khalifa Alkaabi, *Department of Chemistry
and Polymer Science*
- 12:00 pm Process Improvement Studies for
Scale-Up of HNS at Holston Army
Ammunition Plant
Jim Owens, *BAE Systems*

10B- Propulsion 2

Session Chair: Bob Lynch

- 10:20 am Environmentally Friendly, Insensitive
Munitions (IM) Propellant
Thelma Manning, *US Army RDECOM-ARDEC*
- 10:40 am
- 11:00 am
- 11:20 am Novel Plasticizer for IM Compliant
Solid Propellants
Ana Racoveanu, *Physical Sciences, Inc.*
- 11:40 am Metal Matrix Composite Filament
Winding
Brian Gordon, *Touchstone Research Lab*

