

## INSENSITIVE MUNITIONS EUROPEAN MANUFACTURERS GROUP

### EDITORIAL



**Paul Wanninger**  
President

**T**hanks to the development of new or improved energetic materials and also thanks to the use of new concepts, the insensitive munitions are substantially reducing and will further reduce the risks during the deployment of the Forces. Encouraging this evolution is the reason which unites the European manufacturers grouped within their recent organisation: IMEMG (Insensitive Munitions European Manufacturers Group). Assisted in its creation by the Club Murat, IMEMG today includes 16 manufacturers\* from France, the United Kingdom, Germany and Italy. Apart from the discussion

and co-operation platforms thus set up between the member companies, this group also intends to affirm itself as a contact from the European industry with the national authorities and their groups including OCCAR, the European Armament Agency or NATO.

Its first significant action was to host last April in Bristol (United Kingdom) the international symposium on Insensitive Munitions & Energetic Materials Technology, in partnership with the US National Defence Industrial Association (NDIA) and the NATO MSIAC. IMEMG was happy to be able to accompany thus the growing need

for greater international cooperation and collaboration in the defence community.

Our presence at Eurosatory completes this approach: the aim is to promote and make known the latest developments and innovations for the users of more reliable munitions.

In this first Newsletter, IMEMG invites you to become more acquainted with the progress made. The expert groups of the member manufacturers are working on the application of national policies and national or NATO directives which will provide subsequent gains especially in logistics.

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*\* See list of member companies on page 2.*

### CONTENT

#### PAGE 2

The IMEMG expert working groups

#### PAGE 3

Molecules

Mass production of IM shells at Glascoed plant

How the European Industry becomes involved in logistic gain assessments.

Cost / Benefit Analysis: what's on ?

The end of club MURAT's activities to launching of IMEMG

#### PAGE 4

Our presence at Eurosatory

IM charge for 155 artillery shells

## Conference in Bristol (2006 IM&EM Technology Symposium)

**T**he Insensitive Munitions & Energetics Materials Technology Symposium 2006 was held from the 24th to the 28th of April this year in Bristol (UK) and was organised under the auspices

of NDIA, IMEMG and MSIAC. There were over 400 participants including 140 US citizens which, in addition to the quality of the various contributions, made it an undeniable success.



**Ron Scott**  
– IMEMG Vice-President for the UK – welcomes participants

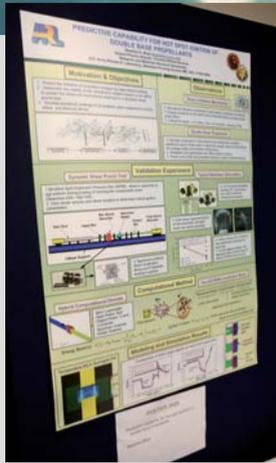


The plenary session was opened by Messrs. David Gould (Deputy CE, DPA, UK MoD), Anthony J. Melita (US Deputy Director Land Warfare & Munitions), Jim J. McLay (Director DOSG), Chris J. Leach (Group Director Technology RAO MoD), Yves de Longueville (French DGA/IPE), Franz Jueptner (German BWB) and Paul Wanninger (IMEMG President), who all recalled the importance of insensitive munitions





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**BEST POSTER AWARD**

At the end of the Conference, a selection committee presented the IMEMG Best Poster Award to Mr Stephan Bilyk from the U.S Army Research Laboratory. The title of the poster was "Predictive Capability for Hot Spot Ignition of Double Base Propellants".

for the operatives, the financial and organisational efforts made by the various NATO countries and the need to maintain a coherent industrial base to meet the needs of the forces.

Strong participation from the main European and US players in the munitions sector, especially by means of presentations of the main on-going programmes and the latest technical progress and innovations in the IM field, demonstrates moreover the vitality of the manufacturers and the energy deployed to meet as



David Gould



Anthony J. Melita



Franz Jueptner



Jim J. McLay



Chris J. Leach



Yves de Longueville

adequately as possible the increasingly demanding specifications for reducing the vulnerability of munitions.

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**Member companies**



CEA/Direction des Applications Militaires  
Giat Industries  
MBDA-F  
PROTAC  
ROXEL  
EURENCO  
SNECMA Propulsion Solide  
TDA Armement



AWE  
BAE Systems – Land Systems  
MBDA (UK)



DIEHL BGT Defence  
JUNGHANS Feinwerktechnik  
Rheinmetall  
TDW



SEI SpA

**Board of Directors:**

Dr Paul Wanninger, Rheinmetall  
*President*

Mr Joël Ferron, TDA Armement  
*Treasurer*

Mr Dominique Bouchaud, Giat Industries  
*Vice-President for France*

Eur Ing Ron Scott, MBDA - UK  
*Vice-President for the UK*

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*Vice-President for Italy*

Dr Helmut Muthig, TDW  
*Vice-President for Germany*

**The IMEMG expert working groups**

Created thanks to the impetus of the IMEMG member companies, the IMEMG Expert Working Groups comprise and act as a think tank. They encourage development maintaining the expertise of their members in IM at the highest level. Two of them have presented papers at the last IMEMTS in Bristol, United Kingdom. A brief summary of these presentations is given below.

**The need for harmonisation in Insensitive Munitions assessment testing**

Author : Expert Working Group on IM Policies in the OCCAR countries and in the US.

The maximising of the benefits to be gained from IM is an international concern which requires common means of interpretation.

Despite the progress made in harmonising the test STANAGs with reference to STANAG 4439 and AOP39, it appears that these documents are not sufficiently accurate to ensure full common assessment with no misunderstandings.

Due to its wide range of industrial expertise and practices, the IMEMG Expert Working Group (EWG) on IM policies offers an appropriate international body for outlining the terms that could lead to interpretation and iron out the differences in the final IMness assessment.

The EWG has tackled its job by making a detailed review of the STANAG test methods and the associated practices in the NATO countries, taking into account the substantial support from the National Authority publications and MSIAC documents.

They address the six main tests (Liquid Fuel, Slow Heating, Bullet Impact, Sympathetic Reaction, Shaped Charge Jet Impact, Fragment Impact).

The paper presented in the Bristol 2006 IM&EMTS\* summarises the first results of this joint work. It identifies how the inconsistencies and lack of definitions in the current STANAG 4439 and AOP 39 documents can lead to misinterpretations by those conducting the trial.

Harmonising the test STANAGs is consistent with other US papers and with the forming of a US Navy Munitions Reaction Evaluation Board (MREB) which must address this problem.

In order to work towards best interoperability, IMEMG EWG on IM Policies should ask AC/326 and the working group partners (MSIAC) to harmonise IM test STANAGs in line with its proposals and future actions. IMEMG embraces these goals and is ready to participate in this effort.

\* [www.imemg.org](http://www.imemg.org)

**Logistic gains: direct benefits from IM/MURAT**

**How the European Industry becomes involved in logistic gain assessments**

**Author: Expert Working Group on Quantity / Distances and Benefits for the Forces**

IMEMG has set up an Expert Working Group to internationally promote a specific Hazard Division Classification for Insensitive Munitions. The aim is to give visibility to Customers on the benefits including logistics, safety and security, that can accrue from the use of Insensitive Munitions.

The work of the Group to date has resulted

in the completion of several studies including a review of the existing National and International processes for defining Hazard Division (HD) Classifications and their relationships to IM. Activities have focused on the work ongoing internationally to agree on the introduction of the new storage subdivision SSD 1.2.3.

A paper\* summarises the work completed to date and illustrates the potential logistic gains of IM in deployment and combat depot. Current methodologies to assess Q/Ds for IM in various NATO countries are given. The difficulties in implementing these are highlighted.

\* [www.imemg.org](http://www.imemg.org)

**Last minute**

**Cost / Benefit Analysis: what's on ?**

It could be difficult to put a figure on the gains that IM can provide. This is why the IMEMG manufacturers are contributing to design tools and/or methods in order to better evaluate the gains and to determine with more accuracy the points where the use of IM will allow substantial gains. In order to specify which parameter is the most influencing (composition, packaging, architecture, lifecycle, etc.), the member companies are considering the launching of an Expert Working Group to work on the issue and to develop data processing tools with the aim of simplifying the gain calculations.

**The end of club MURAT's activities to launching of IMEMG**

The Club MURAT member companies considered at the end of 2005, that the time had come for a European structure to take over what the Club Murat had started more than ten years previously. Indeed, maintaining both a domestic organisation and a transnational organisation with the same goals was not realistic.

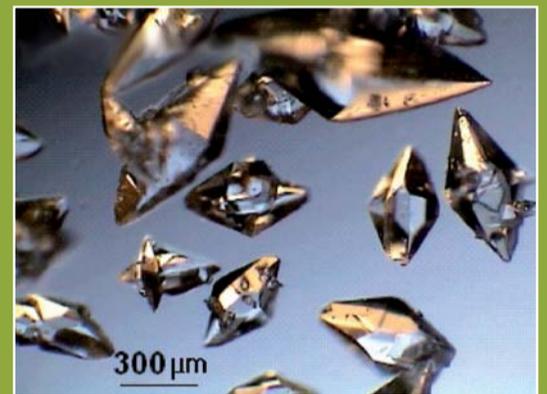
**CLUB MURAT...**

In 1992, five French manufacturers decided to jointly promote Insensitive Munitions. Over the years, several actions were developed through its working groups then, in 1998, as:

- ▶ the armament industries were reorganising themselves on a European basis,
- ▶ large armament programmes were now, very often, being carried out on a multinational basis,

**Molecules**

Large CL20 particles are now crystallised. High charge rates can be achieved to obtain powerful PBXs for shaped charges or new generation warheads.

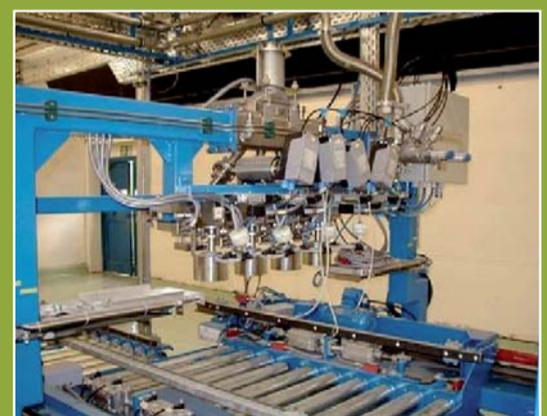


Large crystallised CL20 particles  
SNPE Matériaux Energétiques

Crédit Photo : GROUPE SNPE

**Mass production of IM shells at Glascoed plant**

Production of Insensitive Munitions loaded with cast-cured PBXs. IM compatibility allows the PBX curing facilities to be licensed as Hazard Division 1.3.



Filling heads and pallet conveyor of the Glascoed (BAE Systems – Land Systems) facilities in UK

# news

## IM charge for 155 artillery shells (155mm Rh40)

The new 155 artillery shell Rh40 fielded with cast-cured PBX Rh26® has successfully passed IM tests despite the strong confinement of the charge. With the insensitive booster formulation Rh B3, the main charge Rh26® can be successfully initiated.

The mass production of this IM shell is starting. The process engineering of a formulation with 90% of solid and only 10% of a special binder system was a big challenge.



Rheinmetall IM shells after bullet attack

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- ▶ the European Defence & Security Policy (EDSP) was developing and was considering the creation of the European Defence Agency EDA),
- ▶ the Board of Directors decided that the time had come to explore the possibilities of extending actions to the European area.

This extension included three phases:

- ▶ in 1999, the British, German and Italian manufacturers potentially interested in developing IM were approached,

### ... TO IMEMG

- ▶ a pilot group was then created in 2000 with the view of writing the Terms of Reference, the Statutes and the Internal Rules of the future organisation. Twelve manufacturers joined the pilot group,

- ▶ in 2002, the IMEMG (Insensitive Munitions European Manufacturers Group) was created. 12 companies decided to be the founding members (all eight of the Club Murat member companies). Four others joined soon after.
- ▶ As a consequence, Club Murat ceased its activities at the end of 2005.

I am confident that IMEMG will succeed and will carry out actions to promote the design, development and production of Insensitive Munitions in Europe and throughout the world. The success of the IMEMTS (Insensitive Munitions and Energetic Materials Technologies Symposium) Conference in Bristol augurs well for the future. ■

**Gérard Roche**  
Former President  
of Club Murat

## IMEMG presence at Eurosatory, the International Exhibition for Land and air-Land Defence (Paris 12-16 June, 2006).

For its first participation in Eurosatory, IMEMG intends to show its European dimension by detailing its member companies.

Members of the Expert Working Groups will be ready to reply to questions from specialised journalists and develop the actions undertaken. ■



## newsletter



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### IMEMG

Le Diamant A  
92909 Paris la Défense cedex - France  
Tel : +33 1 46 53 10 45 - Fax : +33 1 46 53 10 56

<http://www.imemg.org>

Subscription: upon request