



PMI FireOne® Electronic Firing System & Firing Equipment Rentals, Sales and Services.



MFE Logistique France

France, Spain, Germany, Belgium, Lebanon,
Chile... Everywhere around the world.

Your consultant and specialist in logistics &
engineering for Fireworks & FX Industry.



More information:
<http://www.mfe-logistique.com>

Sarl MFE Logistique
17, rue du 19 Mars 1962
62580 THELUS - France

e-mail : contact@mfe-logistique.com
phone : +33 (0) 321 078 640
+33 (0) 632 282 261



12th International Symposium on Fireworks Porto/Gaia, Portugal October 11-15, 2010

Program





GOLDEN PEAK FIREWORKS CORP.

HTTP: www.chnfireworks.com

Email: Sesame@chen-sesamechen@chnfireworks.com

Yang Kuang market-1@chnfireworks.com

Tel: 86-795-8902233 8900498 8900208

Fax: 86-795-8900836

Address: Third Floor, Jinfeng Bldg, Jin Sanjiao Road, Wanzai, Jiangxi, China, 336100

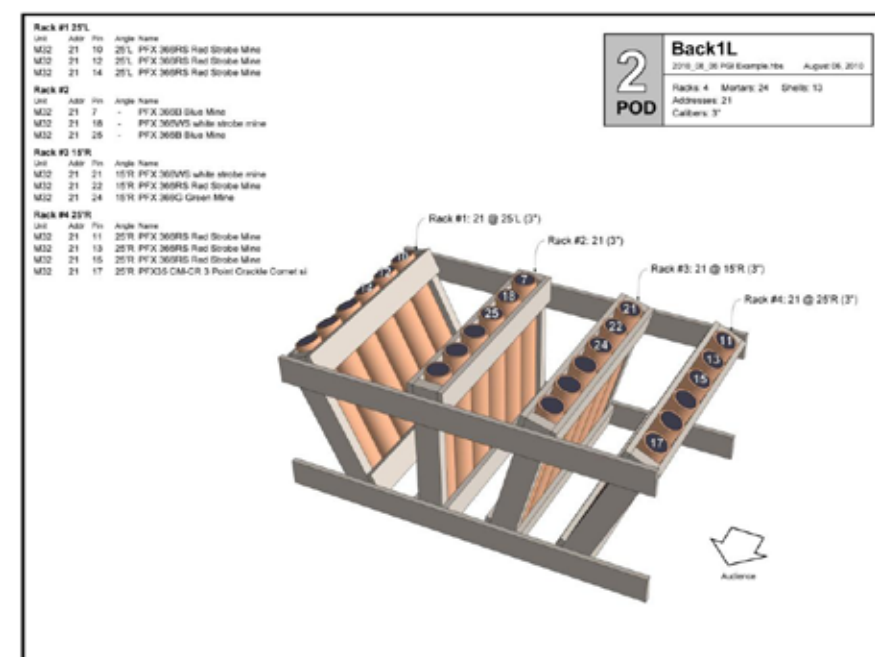


Factory price, assured of quality.

Focus on details, a trustworthy manufacturer and exporter.

FINALE | FIREWORKS™

Our mission is to build you the choreography and inventory management software that you've always wanted, but never had. Every month Finale software gets better and better. Why? Because we listen to you, and **we build what you tell us**. Check out the latest innovation in choreography software, 3D site layout diagrams:



Above: Example page from a site layout report printed by Finale Business Edition (\$699). If you've ever had inexperienced volunteers on your crew, you know what it takes to bring them up to speed. Can you imagine how much time it would save if you could email them a report that gave them instructions and showed them visual diagrams of everything they had to setup?

Choreography

From \$299

Complete visual simulation and choreography system for designing and shooting world class displays with manual firing or computer firing.

- Works with all major firing systems
- Creates voice cue tracks for manual firing
- Prints reports, labels, and diagrams
- Makes sales videos
- Supports 1.4 and 1.3 products
- Easy to use!

Inventory management

From \$149/mo

SOLD OUT (Waiting list only*)

Enterprise class, integrated inventory management solution for display companies, manufacturers and importers in the fireworks industry.

- Secure access from multiple locations
- Multiple, concurrent users
- Real time, up-to-date access
- Equipment management
- Bills of lading, magazine reports, etc.
- Automatic offsite backups

* To provide the best service we only accept a limited number of clients.

Message from the ISF Society Chairman Ettore Contestabile

Welcome all to the 12th International Symposium on Fireworks in Porto/Gaia! Here we are once again meeting in a locale where society is infused with a distinct culture of fireworks. You can feel it! The road began with the Portuguese pyrotechnicians attending the ISF in the late nineties and then every following ISF. Always there, not necessarily in large numbers, but making presentations or taking part in the Moderated Sessions and of course the festivities. Who can forget the impromptu Portuguese evening in the Trade Show area in Berlin? Who knew that so many goodies could have been brought over from Portugal for this evening celebration? It was great!

There never seemed to be much pressure for a Symposium in Portugal, but the ISF Directors were surprised that when the call went out for the 12th ISF, a proposal was received from Portugal. It was the very best proposal among those submitted. As a result, the ISF directors unanimously voted for Portugal as the site for the 12th International Symposium on Fireworks.

Great effort has gone into making sure that the Portuguese fireworks community is well represented in the Program and I hope that all the ISF attendees will acquire a much better appreciation for fireworks, traditions, and the Portuguese struggle to adapt to global demands and regulations.

Over the last year or so, the economic downturn has caused many individuals and businesses to reduce their travels. In fact some conferences offered web-conferencing as an alternative to in-person attendance. Some conferences cancelled their event altogether. This was a concern for the ISF since it functions solely on the registration fees collected and sponsorship from supporters. The ISF cannot afford a low attendance and for this reason, takes in consideration the attractiveness of the site to our regular and new registrants, amongst other factors. As bad as the economic situation seemed in Europe, the numerous submissions of abstracts for presentations, the quick sale of the trade show booths and the many inquiries regarding the 12th ISF encouraged us to proceed. But most of all, the light that shone the way came from the Portugal Host Committee. Not only did its members achieve what was expected by the ISFS, but they went beyond to prepare for their guests. The Portugal ISF

Host Committee has made many arrangements for an enjoyable stay in Porto/Gaia. So, as you will undoubtedly enjoy the week, give a word of thanks to our Host Committee members. They deserve it.

I hope that everyone will enjoy the ISF Program and all the evening events organized for you; all with the goal of continuing to

ΕΞΕΥΡΙΣΚΕΤΕ ΤΟ ΠΥΡ.

Message from the ISF Co-Chairman António Rodrigues, President of A.N.E.P.E.

Bem-Vindos, Welcome!

First, I would like to thank the International Symposium on Fireworks Society for choosing Portugal as the place of the 12th International Symposium of Fireworks (ISF). The North of Portugal is well known for its hospitality and friendly people. This place (Porto/Gaia), where you can tour and have some leisure time, was, in our opinion, the best option for the 12th Symposium.

I remember my first Symposium in Orlando (USA) in 1996, and, since then, I have been waiting for the chance of hosting the ISF in Portugal. Now my wish is fulfilled! Portuguese Fireworks, already known among many countries, will certainly improve, because of the sharing of new experiences and knowledge of all of you and we thank every attendee for that too. During the Symposium, we'll try to show you the best of our culture and traditions concerning Portuguese Fireworks, as well as the evolution of techniques that has occurred in the last years. For a whole week, you will watch different firework displays, from the most traditional (as the big rockets) to the most developed technique according to the Portuguese pyrotechnics art and knowledge. You will also have the chance to see some amazing international displays.

And on your free time try to enjoy the superb view, the gastronomy, the wine, and get to know a little more about Portuguese culture and traditions. The views of Porto and Gaia are magnificent: You can see from both sides the most historic parts that have been preserved. And...sitting on a terrace, sipping a wine, you can see the lights twinkle on the Douro River as the sun sets. I'm sure you will return to Porto/Gaia, and we will be glad for your visit.



Once again, in my name and on the behalf of the members of ANEPE - Associação Nacional de Empresas de Produtos Explosivos (National Association of Explosives Products Enterprises), I thank you for the deserving confidence on us, for this 12th ISF in Porto/Gaia.

A toast with "Port Wine"! Have a good Symposium and enjoy the stay!

Bem – Vindos!

Em primeiro lugar, quero agradecer à International Symposium on Fireworks Society por escolher Portugal para a realização do 12.º Simpósio Internacional sobre a Pirotecnia (ISF). O Norte de Portugal é conhecido pela hospitalidade e simpatia da sua população. O local (Porto/Gaia), onde se pode ocupar o tempo a passear ou aproveitando para descansar, foi, na nossa opinião, a melhor opção para o 12.º Simpósio.

Recordo a minha participação no meu primeiro Simpósio em Orlando (USA) em 1996, e desde essa data fiquei a aguardar a oportunidade de receber o ISF em Portugal. Agora o meu desejo torna-se uma realidade. Os



fogos de artifício portugueses, que já são conhecidos em diversos países, irão certamente melhorar com a troca de novas experiências e conhecimentos com todos vós, pelo que também agradeço por isso a vossa participação. Durante o simpósio, iremos tentar mostrar o melhor da cultura e tradições dos fogos de artifício Portugueses, bem como a sua evolução técnica dos últimos anos. Por toda a semana, poderão ser observados diferentes demonstrações e espectáculos de fogo-de-artifício, desde o mais tradicional (como os foguetes de grandes dimensões) até ao mais tecnicamente desenvolvido segundo a arte e conhecimento da pirotecnia Portuguesa. Também teremos a oportunidade de ver algumas demonstrações espectaculares de cariz internacional.

No vosso tempo livre não deixem de gozar a estupenda paisagem, a gastronomia, o vinho e conhecer um pouco mais sobre a cultura e tradições Portuguesas. As vistas do Porto e Gaia são magníficas; Podem verificar que dos dois lados foi preservado o património histórico mais importante. E... sentados numa esplanada, saboreando um vinho, observem o cintilar das luzes no rio Douro imitando um pôr-do-sol. Tenho a certeza que regressarão ao Porto e a Gaia, e nós ficaremos satisfeitos com a vossa visita.

Mais uma vez, pessoalmente e em nome dos membros da ANEPE - Associação Nacional de Empresas de Produtos Explosivos, quero agradecer a confiança depositada em nós para a realização do 12.º Simpósio Internacional sobre a Pirotecnia em Porto/Gaia.

Finalmente, quero propor um brinde com “Vinho do Porto”! Tenham um bom simpósio e apreciem a estadia! Viva!



The 2010 ISF Honorary Chairman Jacinto Caetano Martins

Jacinto Caetano Martins was born on the 29th April 1928, in Moita do Norte – Barquinha – Santarém. He completed the 3rd year of High School Education and the Course of Commerce and Accountancy. He then received the Certificate of Gunpowder and Fuses Technician, issued by the competent authorities.



He has worked in the Pyrotechnics, Gunpowder and Fuses industry since he was 12 years of age, first in his grandfather's and then in this father's company. In 1964, due to his father's retirement, he took on the administration of the company which was then solely dedicated

to the manufacturing of gunpowder and fuses for the pyrotechnics and for the explosives industry.

He was responsible for the introduction of innovations in the production of fuses, such as the plastic casing and the 10-mm thick fuse. In the 80s, he began exporting fuses to European countries and other countries outside Europe.

He was one of the first Portuguese pyrotechnicians to participate in congresses and meetings of the pyrotechnics sector at a European level.

He was one of the major driving forces for the creation of an association of pyrotechnic and explosives companies in Portugal.

He is one of the most renowned, highly-regarded and respected Portuguese pyrotechnicians still professionally active in the Portuguese pyrotechnics sector.

Jacinto Caetano Martins, nasceu a 29/Abril/1928, em Moita do Norte – Barquinha – Santarém, concluiu o 3.º Ano do Liceu e o Curso Comercial e de Contabilidade e recebeu um diploma de Técnico de Pólvoras e Rastilhos emitido pela autoridade competente.

Desde os 12 anos de idade que trabalha na indústria de Pirotecnia, Pólvoras e Rastilhos, primeiro na empresa do avô e depois do pai. Em 1964, devido à saída do Pai, assumiu a gerência da empresa que entretanto se dedicou unicamente ao fabrico de pólvoras e rastilhos para a indústria pirotécnica e explosivos.

Foi o responsável pela introdução de algumas inovações no fabrico de rastilho, nomeadamente a cobertura em plástico e do rastilho com a espessura de 10 mm, na década de 80 iniciou a exportação de rastilho para países europeus e outros países fora da Europa.

Foi dos primeiros pirotécnicos portugueses a participar em congressos e reuniões do sector da pirotecnia a nível europeu.

Foi um dos grandes impulsionadores para a criação de uma associação de empresas pirotécnicas e de explosivos em Portugal.

É dos pirotécnicos Portugueses mais conhecido, conceituado e respeitado no sector da pirotecnia Portuguesa ainda no activo.

12th International Symposium on Fireworks

Chairman
Ettore Contestabile, CERL

Honorary Chairman
Jacinto Caetano Martins

Technical Program Co-Chairmen
Roger L. Schneider, Rho Sigma Associates Inc.
António Rodrigues, President of A.N.E.P.E.

Symposium Coordinator and Treasurer
Fred Wade, Fireworks F/X Inc.

Presentation Audio-Visual Coordinators
Alexander von Oertzen, BAM

Moderated Session Coordinators
Masamitsu Tamura
Bert von Rosen

Proceedings Editors
Ettore Contestabile, ISFS
Bert von Rosen, CERL
Alexander von Oertzen, BAM
Masamitsu Tamura, University of Tokyo
Roger Schneider, RhoSigma Associates Inc.

Administration
Cathy Chute, Fireworks F/X Inc.
Lynn Wade, Fireworks F/X Inc.

Porto/Gaia International Symposium on Fireworks Host Committee

President: António Rodrigues – ANEPE
General Coordinator: Mélanie Cagnon – Grupo Luso Pirotecnia
Secretary: Alexandre Simão – Propyro – Produtos Pirotécnicos, Lda.
Finances: Manuel Gonçalves – Pirotecnia Barbeita Lda.

Displays Coordinators:
Joao Paulo Ribeiro – Pirotecnia Oleirense Lda
Carlos Viana de Almeida – Viana e Filhos Lda
Communications Coordinators:
Joaquim Melo – GJR Pirotecnia e Explosivos S.A.
Rui Martins – Martins e Martins Lda

Conference and Protocol Coordinators:
José M. Santos da Cunha – Santos da Cunha 5 – Artificio Lda.
Vitor Machado – Pirotec Lda.

Directors: International Symposium on Fireworks Society (ISFS)
Ettore Contestabile, *Chairman*
Roger L. Schneider, *Vice Chairman Chairman*
Fred Wade, *Secretary-Treasurer*
Alexander von Oertzen, *European Section Director*
Masamitsu Tamura, *Asian Section Director*
Bert von Rosen
Julie Heckman
Guy R. Colonna



Registration

Registration to the 12th International Symposium on Fireworks includes entry to receptions, meals and refreshment breaks, all technical sessions, workshops, site visits, evening fireworks displays and demonstrations, and to the Trade Show.

Registrants will receive a printed copy of the 12th ISF Proceedings as well as a copy on DVD, which is a compilation of the scientific and technical papers presented and any other promotional material supplied by sponsors.

Registration will be at the Porto Palacio Hotel on Sunday from 13:00 to 17:00 and on Monday from 9:00 to 17:00.

The registration cost is \$750 USD per person.



Trade Show

Exhibits will open each day at 9:00 Monday to Friday, and will close at the same time as the technical sessions. Attendees are strongly encouraged to visit our exhibitors and discuss their topics and services. The exhibitors' participation is a welcome and necessary part of the Symposium.

Sponsorship of Symposium Activities

The Symposia are funded exclusively by attendees' registration fees and sponsorship. As the Symposia are conducted on a non-profit basis, corporate and government sponsorships are absolutely necessary to ensure a high quality event while maintaining registration fees at a modest level. Please consider now and at future Symposia sponsoring an item on the list of Sponsorship Opportunities. Sponsors are acknowledged in the Symposium program guide and at any specific activity supported. The Symposium Society would be receptive to your suggestions of financial support, and Sponsorship packages of various donation levels can be customized. Consider also donating your company's promotional items for the attendee registration bags.



Doing Business at the Symposium

This international gathering is an excellent opportunity for manufacturers and suppliers to engage in business on a direct basis with key decision-makers from companies around the world.

Manufacturers and suppliers are encouraged to promote their goods and services in several ways;

- Symposium Trade Show
- Advertisement in the Symposium program
- Inserts in the attendees registration bags
- Product demonstrations

Currency Exchange

Banks are located near to the Symposium hotels, and Automated Banking Machines are common. The local currency is the Euro. US dollars are accepted virtually everywhere as are credit cards.

Weather Conditions in October

October can be warm and nice and a little summery but also cold and rainy as autumn. Average daily temperatures during October are a daytime high 21°C and an evening low of 11°C.

Most of the shows and evening presentations will take place near the sea, therefore it is recommended to bring a jacket or warm sweater just in case.

Porto is an old “Bourg” city, comfortable shoes are necessary as the hills can be hazardous for high heels.

An umbrella or rain jacket is recommended as well.

Social Activities

One of the greatest benefits to attending the Symposium is meeting and talking with people involved in every aspect of the fireworks/pyrotechnic industry. Starting with the welcome reception on Sunday evening, meals and coffee breaks, after hours activities in the hotel lounge or in the many local restaurants and bars in the evenings, while viewing fireworks demonstrations, there is a wealth of opportunities available for interaction. You will leave with many contacts from around the world, and hopefully new friends as well. We also hope that you take time to explore the Portuguese culture and many sites of interest while you are visiting, there is a wealth of things to see and do. Just a few suggestions of “must do”;

- Take a coffee and a “pastel de nata” at Café Majestic on Santa Catarina Street. This café is one of the oldest coffee places in Porto and the history can almost be read in the magnificent mirror that remains on the wall of the shop. Little expensive but a nice place to capture Porto of the old time.
- Go book shopping at this wonderful and very antique book store “Livraria Lello e Irmão” on Rua das Carmelitas 144, where the now-famous stairway leading to the 2nd floor is worth the visit. If you are into literature you may buy one of José Saramago’s books, recently passed away and who was rewarded in 1998 Nobel Prize for Literature.
- Visit the “Palácio da Bolsa”. Even though the visit is interesting but nothing very fancy, the Arab room at the end of the visit makes it all very special. This room will take your breath away as will the Church of San Francisco that is just behind the Palacio. Two amazing Treasure in one place.
- Admire the “azulejos” wall (typical Portuguese tile fresque) at San Bento train Station.
- Sip a Port wine Sangria while having the best view of Porto City, on Vila Nova de Gaia. One of the best can be drunk at “Ar no Rio”, a cabin-restaurant just in front of Sandeman port wine cave and on the shore of the river.
- Have a romantic dinner or a cocktail on the Ribeira zone in Porto or Gaia.
- You must keep half a day or at least one hour to go on a Douro river Cruise and admire the valley of Douro where all Port wine is made. If you don’t have a lot of time, we suggest the Bridge’s ride that will take you nearby and visit all the bridges over Douro River.
- Visit at least one of the Port wine caves where you may learn the history of Port wine. Tasting is included at the end of each visit as there is nothing better than a little experimentation after learning all about the subject.
- Go shoe shopping on Santa Catarina Street where you can find Portuguese shoes at a very affordable price as well as all other renowned main stores chains.
- On Vila Nova de Gaia, take the newly opened telecabin to “Serra do Pilar” to admire both margin and have wonderful view of the river, Porto City and D. Luis Bridge.



SYMPOSIUM WEEK AT A GLANCE							
Time	Sunday 10	Monday 11	Tuesday 12	Wednesday 13	Thursday 14	Friday 15	Saturday 16
		Registration Trade Show Until 17:00	Trade Show Until 17:00	Trade Show Until 12:00	Trade Show Until 17:00	Trade Show Until 12:00	Optional: Douro River Tour 8:30 to 19:00 \$90 USD
8:30		OPENING of Symposium	Presentations	Presentations	Presentations	Presentations	
10:00		Break	Break	Break	Break	Break	
10:30		Presentations	Presentations	Moderated Sessions	Presentations	Presentations	
12:00		LUNCH	LUNCH	CLOSE	LUNCH	CLOSE	
13:30		Presentations	Presentations		Presentations		
14:00	Registration						
15:00		Break	Break		Break		
15:30		Presentations	Presentations		Presentations		
17:00	Welcome Reception	CLOSE	CLOSE	Optional: “A Portuguese Festa” with a lot, a lot, a lot, a lot, of ROCKETS, food and drinks, all for \$20 USD	CLOSE	Closing Gala Dinner at Ferreira Wine Cave \$50USD	
		Fireworks		Fireworks	Fireworks	Fireworks	

SCHEDULE OF PRESENTATIONS

Monday, October 11

8:30 OFFICIAL OPENING
ISF Chairman, *Ettore Contestabile*
Honorary Chairman, *Jacinto Caetano Martins*

ISF Co-Chairmen
Roger L. Schneider
António Rodrigues

History of Portuguese Fireworks
- *António Rodrigues*, President of A.N.E.P.E. –
Associação Nacional de Empresas de Produtos
Explosivos (National Association of Explosives
Products Enterprises), Portugal

9:30 BREAK

Session 1

Session Chairperson: *Jorge Manuel C. Duarte* – Presidente
da Assembleia Geral da APIPE – Associação Portuguesa
dos Industriais de Pirotecnia e Explosivos

10:00 **Breaking a World Record** – 125,801 Rockets in
Under 30 Seconds - *Brian Benjamin Andrade Lim*,
Pyroworks International Inc., Philippines

10:30 **Pyrotechnics and Prevention – Two Worlds
Connected** - *Cristina M.A Moutinho Pinheiro*,
Safety Consultant, Portugal

11:00 **The Effects of the New European Directive on
Pyrotechnics Rules in Spain** – *Jordi Bertran*,
Fundació Fira Mediterrània, Spain.

11:30 **Understanding Colored Smokes**
- *Joseph A. Domanico*, Aberdeen Proving Ground,
Edgewood Chemical Biological Center, USA

12:00 LUNCH



Session 2

Session Chairperson: *Joseph A. Domanico* - Edgewood Chemical Biological Center, Aberdeen Proving Ground, USA

- 13:30 **Two Tests Demonstrating the Effects of Small Blasts inside Explosives Storage Magazines** - *Jason Ollerenshaw* and *Bert Von Rosen*, Canadian Explosives Research Laboratory (CERL), Canada
- 14:00 **Fire Tests on Pyrotechnic Articles that are Sold Over the Counter in Argentina** –*Griselda Montero*, Cienfuegos S.A., Argentina
- 14:30 **Consumer Fireworks Testing – The Effect of Automatic Fire Sprinklers on Fire Behavior** - *Julie L. Heckman* and *John A. Conkling*, American Pyrotechnics Association (APA), USA
- 15:00 BREAK

Session 3

Session Chairperson: *Christian Lohrer* – BAM Federal Institute for Materials Research and Testing, Germany

- 15:30 **Fireworks Shells, Mortars, and the ‘Q-Ratio’** - *Ettore Contestabile*, International Symposium on Fireworks Society (ISFS), Halifax, Canada
- 16:00 **Experimental Study on Time/Pressure Test for Pyrotechnics** - *Zhang Guanghui*, *Tan Aixi*, *Jiang Zicheng*, *Qiu Zhaoshu*, *Qiu Lina*, Fireworks and Firecracker Inspection Centre of Hunan Entry-Exit Inspection Quarantine and Bureau Liuyang, China, Y.S. Chua, International Quality Assurance B.V., China
- 16:30 **Comparative Investigation on the Thermal Flux Test for Fireworks Transport Hazard Classification** - *Liu Xiangyang*, Yancheng Entry-Exit Inspection and Quarantine Bureau, China
- 17:00 CLOSE



Tuesday, October 12

Session 4

Session Chairperson: *Rachel Robbins* - Senior Inspector, Pyrotechnics/Fireworks, Explosives Regulatory Division, Canada

- 8:30 **Multiple Firing Systems Usage on a Display** - *Vitor Machado* and *Carlos Pereira*, Grupo Luso Pirotecnia, Portugal
- 9:00 **Eliminating Ignition Timing Latencies with UltraFire** - *Dan Barker*, Pyrotechnics Management, Inc, FireOne, USA
- 9:30 **New Design Methodologies to Ensure Safety and Robustness for Programmable Firing Systems** - *Francesco M. Franzinelli Socini Guelfi* and *Daniele Lenzi*, ArSilicii s.r.l., Italy, Luigi L. Monetti and Carlo Monetti, Monetti s.r.l., Italy
- 10:00 BREAK

Session 5

Session Chairperson: *José Carlos Góis* – Presidente da Direcção da AP3E – Associação Portuguesa de Estudos e Engenharia de Explosivos

- 10:30 **Computer Choreography for Electrically Fired Shows** - *Will Harvey*, Finale Fireworks, USA
- 11:00 **Quality Control Testing of Pyrotechnic Articles for Beijing 2008 Olympic Games** - *Andrew Tang*, Tian Cheng Pyrotechnics Laboratory, China; *Rongqiu Lu*, Hunan Fireworks Safety Quality Supervision & Inspection Center, China
- 11:30 **International Standardization of Fireworks** Proposal by the National Fireworks & Firecrackers Standard Technical Commission of PRC - *Heming Li*, Hunan Liuyang Quality and Technical Supervision Bureau; *Rongqiu Lu*, Hunan Liuyang Fireworks Safety Quality Supervision & Inspection Center; *Chaxiang Huang*, China National Fireworks & Firecrackers Standard Technical Commission, China
- 12:00 LUNCH

Session 6

Session Chairperson: *António Neves Ferreira* – Sub-Director da ACT – Autoridade para as Condições do Trabalho

- 13:30 **Risk Analysis of Fireworks Transport in Cargo Container Ships** - *Ruddy Branka*, *Guy Marlair*, *Brigitte Nedelec*, Institut National de l’Environnement Industriel et des Risques (INERIS), France
- 14:00 **Are Risk Assessments Necessary in Order to Review Existing and to Sanction the Building of New Fireworks Plants?** - *Joseph Theuma*, Maltese Pyrotechnic Society, Managing Director 19th March Fireworks, Rabat, Malta
- 14:30 **Safety Zone for Pyrotechnics Establishments in Portugal** - *Manuel Rodrigues*, APIPE – Associação Portuguesa dos Industriais de Pirotecnia e Explosivos (Portuguese Association of Pyrotechnic and Explosives Industry), Portugal
- 15:00 BREAK

Session 7

Session Chairperson: *Yuji Wada* – Research Institute of Science for Safety and Sustainability (RISS), National Institute of Advanced Industrial Science and Technology(AIST)

- 15:30 **Mutually Hazardous Sites** – *Ettore Contestabile*, ec Blast Consulting, Canada, *Roger Schneider*, Rho Sigma Associates, Inc., and *Steve Coman*, RES Specialty Pyrotechnics, USA
- 16:00 **Analysis of Explosives Accidents in Portugal over the Period 2005–2007** - *José Góis*, Laboratory of Energetics and Detonics, University of Coimbra, Portugal
- 16:30 **Classification of Causes of Fireworks Accidents in Japan** - *Yusuke Wada*, *Shoko Abe*, *Kaori Owa Heisig*, *Saki Uchimura*, *Nobuo Nakajima*, *Masahide Wakakura*, and *Yuji Wada*, National Institute of Advanced Industrial Science and Technology (AIST), Japan, *Katsumi Katoh*, Fukuoka University, Japan, *Mitsuru Arai*, University of Tokyo, Japan
- 17:00 CLOSE



Wednesday, October 13

Session 8

Session Chairperson: *Ruddy Branka* – Institut National de l’Environnement Industriel et des Risques (INERIS), France

- 8:30 **European Qualification Framework in the Explosives Sector** - *José Góis*, Laboratory of Energetics and Detonics, University of Coimbra, Portugal
- 9:00 **Standardisation of Fireworks - Quo Vadis?** - *Christian Lohrer*, BAM Federal Institute for Materials Research and Testing, Division II.3 “Explosives,” Germany
- 9:30 **The Outline of the Regulation of Explosives in Japan** – *Takayuki Kawamura*, Ministry of Economy, Trade and Industry, Japan
- 10:00 BREAK



Session 9

Session Chairperson: Masamitsu Tamura

Moderated Sessions

10:30 – 12:00

Each of the tentative moderated session topics listed below will be assigned to a designated table. The number of participants at each table will be limited to ten, including the moderator. Symposium attendees wishing to take part in the discussion of a particular topic will be required to register with the respective moderator. This should be done prior to 9:00 on Wednesday. Not all topics may be available and new ones may be added.



Each topic will be presented for discussion in two separate, 45 minute sessions, with a break between. This will provide participants the opportunity to attend two different topics, if they wish. Note that translation services will not be available for the moderated sessions; however, some moderators can converse in more than one language.

Tentative Topics and Moderators

1. **Finale Rack Configurations. Thinking Outside the Box** – *Roger Schneider* (Rho-Sigma Associates)
2. **Next Generation Computer Tools Beyond Choreography** – *Will Harvey*, (Finale Fireworks)
3. **Authorization of Fireworks in Canada** – *Rachael Robbins* (ERD, NRCAN)
4. **The Creative Process and Pyrotechnics in a Multimedia World** – *Eric Tucker* (Performance Pyrotechnic Associates)
5. **Dramatic Decline in Consumer Fireworks Injuries in the U.S.** – *Julie L. Heckman*, (American Pyrotechnics Association)
6. **Close proximity fireworks in stadiums** – *Paul Philipsen* and *Martin Hildeberg* (?????)
7. **Safe transportation of fireworks by cargo container ships** – *Ruddy Branka* (INERIS)
8. **On the Road to European Standards for Fireworks of Categories 1-4** – *Christian Lohrer* (BAM)
9. **Quality Control Inspections: Sharing Experiences between Industry and Notified Bodies** – *Lutz Kurth* (BAM)
10. **Fragmentation hazards from the detonation of small quantities inside magazines: Defining the problem and finding a solution** – *Bert von Rosen* (CERL, NRCAN)
11. **Designing Pyrotechnic Effects** – *Vitor Machado* (Grupo Luso Pirotecnia)
12. **Understanding Strobe Mechanisms** – *Justine Corbel* (TNO)
13. **Environmental Effects and Sampling Strategies of Fireworks** – *Ben Schwegler* (Walt Disney Imagineering Research & Development)
14. **Safe selling of consumer fireworks** - *Brian Lim* (Pyroworks International Inc.)

12:00 CLOSE

Thursday, October 14

Session 10

Session Chairperson: *Francisco A. C. Bagina* – Director do DAE – Departamento de Armas e Explosivos da Direcção Nacional da Polícia de Segurança Pública

- 8:30 **Analysis on Strong Burst in Display Shells and Frequent Problems** - *Zhang Shoujin*, Liu Guoping, China Liuyang New-Art Pyrotechnics Co., Ltd., China
- 9:00 **A Study on the Bursting Phenomena of a Japanese Shell (Warimono)** - *Shuji Hatanaka*, *Norihide Suruga*, *Ikumi Matsui*, Bureau of Pyrotechnics Inspection (BPI), Japan Pyrotechnics Association (JPA), Japan
- 9:30 **Collision Hazard of Falling Shell-Case Fragments** - *Shuji Hatanaka*, *Norihide Suruga*, *Ikumi Matsui*, Bureau of Pyrotechnics Inspection (BPI), Japan Pyrotechnics Association (JPA), Japan
- 10:00 BREAK

Session 11

Session Chairperson: *Trevor Vella* – Malta Tourism Authority (MTA), Malta

- 10:30 **Impacts of Various Conditionings on Performance Parameters of Category 4 Fireworks Shells** - *Kim Statta*, *Lutz Kurth*, *Andreas Dutschke*, *Nadine Kästorf*, *Christian Lohrer*, BAM Federal Institute for Materials Research and Testing, Division II.3 “Explosives”, Germany
- 11:00 **Experiences with Netherlands Consumer Fireworks Tested According to the New European Standard EN 15947** - *E.G. de Jong*, Netherlands Organization for Applied Scientific Research (TNO) Defence, Security and Safety, The Netherlands and D. Wong, International Technical and Quality Services (ITQS), Hong Kong
- 11:30 **The Flying Fireworks Squad (VbV) Enforcement on Fireworks in The Netherlands** - *Arno van Dop*, Ministry of VROM, VROM Inspectorate, The Netherlands
- 12:00 LUNCH



Session 12

Session Chairperson: *Rutger Webb* – Researcher and Business Developer in Pyrotechnics and Energetic Materials, TNO Defence Security and Safety, The Netherlands

- 13:30 **Measurement of the Burn Rate of Black Match as a Function of Moisture Content** - *Susan C. Schneider*, Department of Electrical and Computer Engineering, Marquette University, and *Roger L. Schneider*, Rho Sigma Associates, Inc., USA
- 14:00 **Chemical Exposures from Consumer Pyrotechnics** - *Gerry Croteau*, *Russell Dills*, and *Marc Beaudreau*, Department of Environmental and Occupational Health Sciences, University of Washington, *Mac Davis*, Washington Department of Labor and Industries Division of Occupational Safety and Health (DOSH), USA
- 14:30 **Predicting Combustion Properties of Pyrotechnic Compositions Using Thermodynamic Code Thor – Pollutants and Radiation Evaluation** - *José Campos*, *Luisa Durães*, *A Andrade-Campos* and *António Portugal*, LEDAP - Laboratory of Energetics and Detonics, Portugal

15:00 BREAK

Session 13

Session Chairperson: *José Manuel Santos da Cunha* – Vice-Presidente da Direcção da ANEPE – Associação Nacional de Empresas de Produtos Explosivos

- 15:30 **Fluidised Bed Incineration of Pyrotechnic Compositions** - *J. Campos*, *L. Serrano*, *J. Gois*, *L. Duraes*, and *A. Portugal*, Laboratory of Energetics and Detonics, University of Coimbra, Portugal
- 16:00 **Emission Studies of Theatrical Pyrotechnic Articles under Defined Boundary Conditions** - *Romy Lutze*, *Andreas Dutschke*, *Christian Lohrer*, *Lutz Kurth*, BAM Federal Institute for Materials Research and Testing, Division II.3 “Explosives”, Germany
- 16:30 **Pyrotechnics Disposal, Recycling and Recovery** - *Teresa Muñoz de la Torre*, EXPAL (MAXAM Group), Spain

17:00 CLOSE

Friday, October 15

Session 14

Session Chairperson: *Mélanie Cagnon* – International Business Manager, Grupo LUSO PIROTECNIA, Portugal

- 8:30 **Evaluation of the Safety Properties of Igniters** - *Kazunori Otsuka*, Kayaku Japan Co., Ltd., Japan
- 9:00 **Solar Flare Igniters an Alternative to Pyrotechnic Electric Igniters** - *Fred Wade*, Fireworks FX Inc., Canada
- 9:30 **The New “European Manufacturer” off Pyrotechnic Articles** - *Carlos Fernández*, Laboratorio Oficial J. M. Madariaga (LOM), Spain
- 10:00 BREAK

Session 15

Session Chairperson: *Alexander von Oertzen* - Leiter der Arbeitsgruppe Spreng- und Treibmittel, BAM Bundesanstalt für Materialforschung und –prüfung, Germany

- 10:30 **New Insight into Strobe Reactions** - *J.M.L. Corbel*, *J.N.J. van Lingen*, *J.F. Zevenbergen*, *A. Meijerink*, *O. L. J. Gijzeman*, TNO Security and Safety, The Netherlands
- 11:00 **The Wonderful World of Girondolas** - *Joseph A. Domanico*, Crackerjacks Fireworks Club, East Coast Regional USA, USA
- 11:30 **Pyromusicals in Malta** - *Nick Spiteri*, FireOne Malta, Malta
- 12:00 CLOSE
Closing remarks
– *António Rodrigues* and *Ettore Contestabile*



11th International
Symposium
on Fireworks
Mexico 2009





Schedule of Entertainment

Wednesday

17:00 A Portuguese Fest

Starting at 5PM, this special evening will take you into the atmosphere of a traditional Portuguese “festa”. Recreating the typical festivities organized in Portuguese villages, this night will be full of entertainment, music, typical food stands, drinks and of course, Portuguese traditional fireworks including the famous skyrocket launching and handcrafted set pieces. Among the fireworks animation, don’t miss the launching of the LARGEST ROCKET; A 12-kg Rocket, 550 mm in diameter and with tail, is 6 m tall. It will be a special night to remember as the ISF attendees are guests of the cities of Porto/Gaia. Other surprises are of course to be expected!

Tickets are required for this event at a cost of \$20 USD. The price of admission includes all you can eat and drink, and transportation to and from the Porto Palacio Hotel.

Friday

18:00 – Closing Gala Dinner – “Under the Stars”

To bring a fantastic week in Portugal to a close, the ISF and Portugal Host committee invite you to join your friends and colleagues to a magical night, “Under the Stars”. Throughout the evening guests will be treated as Hollywood stars with a red carpet, welcome photographer, cocktail reception, dinner entertainment with traditional Fado singer and many other surprises. It all takes place in the historic Ferreira Wine Cave where, after a visit of the Cave, dinner will be served. Following dinner the 12th ISF will close with a fireworks display presented by ANEPE and the cities of Porto/Gaia.

Dress code: Cocktail or Business attire.

\$50 USD per person

Sponsored by the Maltese Tourism Authority

Saturday, October 16

Douro River Tour

A wonderful way to finish off a very busy week. Join new and old friends from around the world on a relaxing tour of the Douro River, cruising through locks, beautiful scenery, lunch and an open bar — fantastic!

Price is \$70 per person.

Schedule

- 08:30 Passengers meet at the Quay of Vila Nova de Gaia and board the ship
- 10:00 Ship sails through the Crestuma-Lever Dam - Difference in water level: 14 meters
- 12:30 Ship sails through the Carrapatelo Dam - Difference in water level: 35 meters
- 13:00 Lunch served on board
- 15:30 Passengers disembark at the Régua Quay
- 17:00 Train leaves Régua Railway Station
- 19:00 Arrival at São Bento Railway Station, in Porto

Important Note: You Must Wear Your Name Badges during all Symposium Activities (Indoor and Outdoor)



Sponsors

It would not be possible to maintain the high calibre of the Symposium that we have come to expect without the support and generosity of our sponsors. A warm thank you from all of us, the ISF committee and all attendees. Thank you for your support!

Canadian Explosives Research Laboratory (CERL)
Printing of Proceedings
www.nrcan.gc.ca/mms-smm/expl-expl/sci-sci-eng.htm

Fireone
Sunday Welcome Reception
www.Fireone.com

Hansa- Express Logisitcs
Transport Logistics
www.hansalogistics.com
Coffee break

Maltese Tourism Authority
Friday Closing Gala Dinner
www.mta.com.mt

Monetti S.R.L.
ISF Room Keys
www.monetti.net

Pirotecnia Caballer
ISF Shirts
www.pirotecniacaballer.es

Pyrospectaculars
Attendee Bag
www.pyrospectaculars.com

Sunny
Coffee Break
www.sunnyusa.wcbs.us

Porto City Council / Porto Lazer
Various

Vila Nova de Gaia City Council / Gaianima
Various



Fireworks presentations organized by Host Committee

Monday: 22h Pirotecnia Europla and iFire – Spain
Propyro Lda (firing system by PyroDigiT) – Portugal
Pirotecnia Morsani – Italy

Wednesday: 17h Portuguese national fireworks: contribution of all the Portuguese Fireworks Industry

Thursday: 22h Grupo Luso Pirotecnia and Galaxis – Portugal
Vaccalluzzo (firing system by Pyroleda) – Italy
Pirotecnia Caballer – Spain

Friday: 23h30 Closing show offered by ANEPE and its members



welcomes delegates to the
12th International Symposium on Fireworks

Pirotecnia Europlá products demo at 22h15
11 October 2010, Douro River, Porto

Powered by:
iFire System, Inc. for equipment and
accessories and FireOne Firing System by
Pyrotechnics Management Inc.



PROPYRO

PRODUTOS PIROTÉCNICOS, LDA

Rua Frei Manuel dos Santos, 47
3060 - 459 Ourentã - Cantanhede - Portugal
Tel. +351 231 416144 - Fax +351 231 416843 - Mobile +351 919494069 - E-mail: propyro@iol.pt

PYRODIGIT®

Professional Firing System

E-mail: info@pyrodigit.it
www.pyrodigit.it



Via Caprera, 26 - 47814
Bellaria Igea Marina (RN) Italy
Tel. +39 333 3899978 • Fax +39 0541 332033
E-mail: info@pyroemotions.com
www.pyroemotions.com



VIANA & FILHOS, LDA.

Talhos - 4740 - 015 Antas EPS
Tel. 253 871 517
Fax 253 872 812



PIROTECNIA
San José

Carretera Badajoz - Granada, Km 76
06300 Zafra (Badajoz) - España
Tel. / Fax +34 924 553 953
E-mail: pirosanjose@hotmail.com



**António Vieira
& Filhos, Lda.**

Alvará 357
Covas Abertas - Aroes (S.ta Cristina) - 4820 - 640 Aroes - FAFE
Tel. Resid. 253 494 222 - Tel. e Fax 253 591 413
Telm. 934 124 020 / 939 313 530 - E-mail: geral.antoniovieira@sapo.pt



Fábrica de Fogos de Artifício do Bombarral
António R. Martins Lda

Alto das Moutineiras 2540-132 Bombarral - Portugal
Tels: +351 262 601 499 Fax: +351 262 601 498
E-mail: geral@pirotecniabombarralense.com
www.pirotecniabombarralense.com



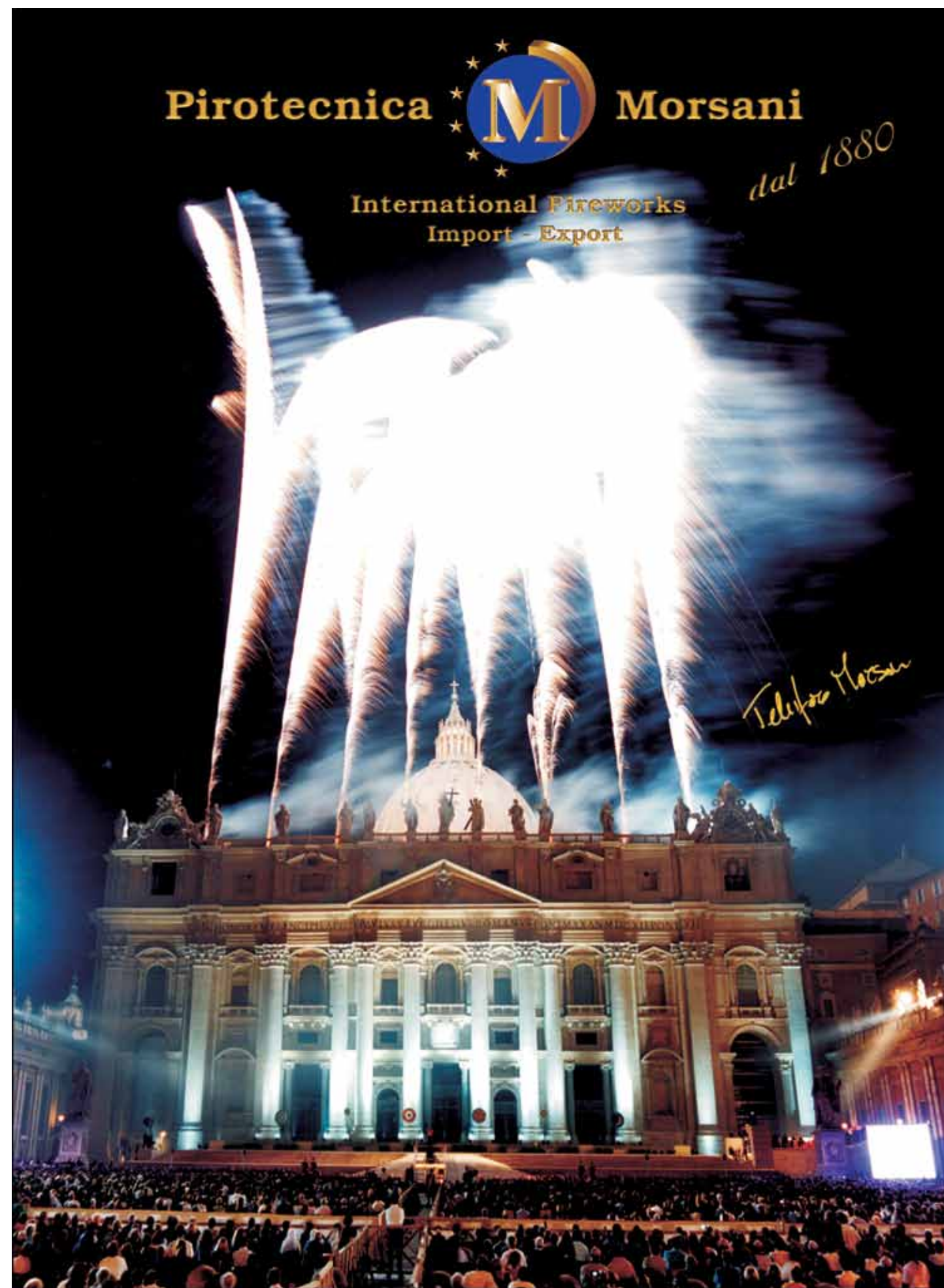
Pirotecnica Minhota, Lda

Bacozil - Santa Cruz do Lima
4990 - 745 Ponte de Lima
Tel. +351 258 948 476 - Fax +351 258 948 553
E-mail: geral@pirotecniaminhota.pt
www.pirotecniaminhota.pt

Pirotecnica Morsani

International Fireworks
Import - Export

dal 1880





A Associação Nacional de Empresas de Produtos Explosivos foi criada em 2006 e tem como objectivo representar e defender os interesses comuns dos seus associados.

The National Association of Companies of Explosives was established in 2006 and aims to represent and defend the common interests of its members.



A ANEPE tem por objectivo a promoção da regulamentação responsável do sector e da utilização segura de todo o tipo de produtos explosivos.

The purpose of ANEPE are promoting responsible regulation of the industry and the safe use of all types of explosive products.



Pirotecnica
CABALLER
VICENTE CABALLER

Since 1880



Multimedia shows, events, pyromusical fireworks, special effects, nautical and aerial fireworks, popular festivities, mascletás, minimascletás...



The philosophy of our company has always been the commitment to *Quality* and research in all production processes. We produce an excellent characteristics product that makes the *Difference*.



Your Best Choice

hansa - express

logistics GmbH



Your AEO certified logistic partner

Your partner for transport of hazardous goods

hansa-express is specialised in worldwide shipping of dangerous cargo IMO class 1.1 to 1.6.

We offer all necessary services for door to door transportation of IMO especially class 1 and class 7 cargo.

- Own truck fleet, equipped for highest explosives transport requirements (ADR EX II and EX III)
- Door to door service for fireworks China - Europe
- Custom bonded warehouses for explosives with a capacity of 1600 metric tons net explosive 1.1
- Ocean vessel with a capacity of 500 metric tons net explosive 1.1
- Seaworthy stuffing of IMO class 1 containers.
- Stripping of IMO containers
- Airfreight & airchartering IMO class 1

Special department for transit licenses, escorts and special national regulations in Europe.



Warehouse



hansa-express logistics GmbH
Zum Bahnhof 16
D-28876 Oyten
Germany

Telefon:
+ 49 (04207) 15 43

Fax:
+ 49 (04207) 10 25

e-mail:
hansa@hansalogistics.com

Just visit our website - www.hansalogistics.com



e-lusopirotecnia.com

Professional Pyrotechnic Products



Luso Pirotecnia exclusive character in a box

- \\ A unique capacity with 3 factories, 58 production buildings and 32 storage units
- \\ ISO 9001 and OSHAS 18001 certified facilities
- \\ Authorized products and export to Asia, America, Europe and Africa



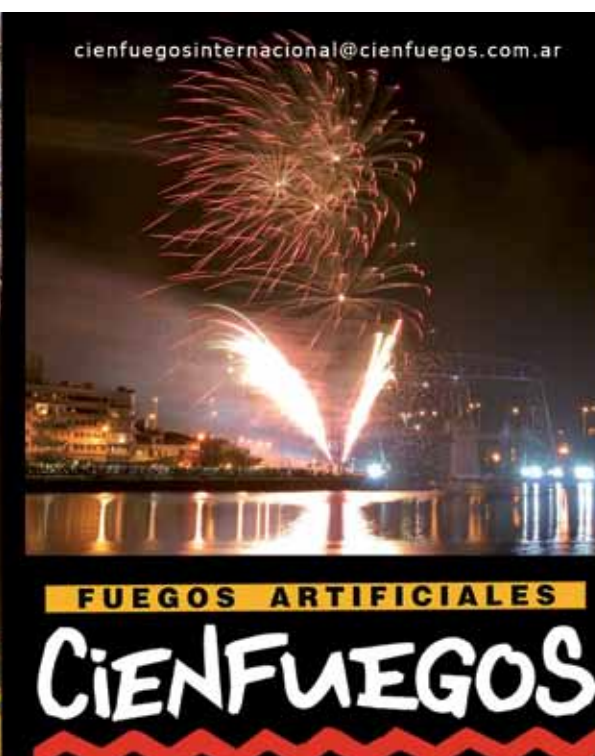
Grupo Luso Pirotecnia
Av. Aliança Povo MFA • 2804-537 Almada • Portugal
T. +351 212 741 056 • F. +351 212 741 058

www.e-lusopirotecnia.com





Vacalluxxo



Argentina - Brasil - Guatemala - Paraguay - Perú
Fabricación - Importación - Exportación - Espectáculos

www.cienfuegos.com.ar www.cienfuegos.com.br www.cienfuegos.com.py www.cienfuegos.com.pe www.cienfuegos.com.gt

