MUNITIONS SAFETY INFORMATION ANALYSIS CENTER
CENTRE D'INFORMATION ET D'ANALYSE SUR LA SECURITE DES MUNITIONS

Lettre du

Newsletter

INSIDE THIS ISSUE

MSIAC AUDIT PROCEDURES OF IM & IM/HC TESTING ORGANIZATIONS' CAPABILITIES & COMPETENCES

NATO is now an Alliance of 28 nations, together with more than 30 Partners. Such an Alliance can only work effectively if there is a common set of standards to professionally execute joint and combined operations. This can be achieved by using STANAGs that are the main tool to achieve interoperability and interchangeability. However, there is a need to ensure that results requested in those standards can be trusted. Auditor accreditation of an organization demonstrating conformity to standards are ways of ensuring that National and NATO needs are met.

This issue was raised at the MSIAC Steering Committee (SC), which agreed to create a work element to address Certification for Munitions Safety Testing at Member Nation Test Ranges. It was also agreed that the initial phase would be limited to IM testing. Accordingly, MSIAC has developed a procedure to self-audit capabilities and competences of organizations carrying out IM tests. The SC also agreed to share this procedure with all member Nations of the CNAD Ammunition Safety Group (CASG), Allied Committee 326 (AC/326).

PURPOSE

The purpose of the MSIAC Self-audit Procedure of IM Testing Organizations' Competences and Capabilities is to establish and promote mutually acceptable testing standards that will lead to internationally acceptable IM test results, reports and IM signatures, as well as recognizing IM test organizations that meet the agreed standard. It specializes in documenting technical competences and capabilities to carry out IM testing and Hazard Classification (IM/HC) tests harmonized to IM tests. It goes beyond traditional quality standards as its objectives are to demonstrate that organizations have the competences to develop sound test methods. Such competences are very important as IM and IM/HC tests are not prescriptive or defined very accurately in standards and can

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be carried out using alternative methods while still meeting standards. It was developed as a support tool to the new AOP-39 Ed. 3, Annex H on "Conduct and Reporting of Full Scale Hazard Tests" developed by Sub-Group 3 (SG-3) of AC/326.

This procedure also provides the technical information needed to document testing according to ISO/EIC 17025 General Requirements for the Competence of Testing and Calibration Laboratories, Clause 5 (Technical requirements). This is a testing laboratories quality management system that applies to all organizations performing tests and/or calibrations regardless of the number of personnel or the extent of the scope of testing and/or calibration activities. Unlike certification to ISO9001, ISO 17025 laboratory accreditation uses criteria and procedures specifically developed to determine technical competence thus, assuring customers that the test, calibration or measurement data supplied by the laboratory or inspection service are accurate and reliable. Most national accreditation bodies have adopted ISO/IEC 17025 as the basis for accrediting their country's testing and calibration laboratories. As such, the US National Institute of Standards and Technology uses ISO 17025 to accredit organizations testing Personnel Body Armor. Therefore, organizations carrying out IM & IM/HC testing could potentially be accredited to ISO17025 for this type of testing.

DESCRIPTION

The MSIAC Audit Procedures is a living document that will be updated to reflect the evolution of IM & IM/HC test procedures. This third edition that reflects changes from the previous version of AOP-39(Ed.2) and other relevant standards comes as four Excel questionnaires:

- Guidance on General Standards (Part A);
- Guidance on IM Testing Competences (Part B);
- IM Test Procedures Mandatory Requirements (Part C);
- Guidance on Reporting Additional IM Testing Capabilities (Part D).

It is designed in such a way that the self-audit (internal audit) can also be used to carry out formal audits. Initially, it is expected that it will be used in the self-audit mode by test organizations to promote their competences and capabilities. It is also useful to identify weakness, limits and potential for non-conformity in a formal audit.

Guidance on General Standards (Part A) enquires about the existence of an environmental management system, an occupational health and safety system and a quality management system.

Guidance on IM Testing Competences (Part B) requests detailed information on the quality assurance system and references on relevant documentation describing these procedures. It also requests information on qualification, training, expertise and experience of personnel carrying out IM & IM/HC testing. More specifically it requests what experience and expertise the personnel have in developing IM tests, writing tests plans, carrying out IM tests, carrying out IM test results, assessment and reporting IM tests results according to STANAG 4439/AOP-39 Ed.3 requirements. In addition to this, it is also enquires about the organization's past and current history in carrying out IM and IM/HC tests as well as the participating trial planning group. These groups typically include representation of the project team, the relevant safety authority and, where appropriate, relevant specialists from research establishments as well as from the testing organization itself. It also addresses in detail the technical information needed to document compliance with sections 5.2 (Personnel), 5.4 (Method Validation), 5.7 (Sampling) and 5.10 (Reporting of Results) of ISO/EIC 17025 Clause 5.

IM Test Procedures Mandatory Requirements (Part C) is an exhaustive and detailed questionnaire compilation of the IM & IM/HC mandatory instrumentation equipment and site requirements as described in NATO and UN relevant testing procedures, i.e., STANAG 4240, 4241, 4382, 4396, 4496, 4526, and 4589, AOP-39 Ed. 3 and UN Transport of Dangerous Goods Manual of Test and Criteria, Ed. 4, 2003. It also contains minimum requirements established on the basis of various tests requirements, rationale for each minimum requirement, detailed references used in establishing these minimum requirements and a comment field to report compliance.

Successfully demonstrating compliance with the above requirements and standards does not reveal a lot about a test organization, other than it has the correct instrumentation, test equipment, physical test site layout, training and a quality management system to enable IM and IM/HC testing to be carried out as per NATO and UN standards requirements. The capabilities of test organizations to perform tests effectively with a high degree of result reproducibility, their strengths and their limitations are not assessed. The variability of the results is magnified by the fact that IM and IM/HC tests procedures are not defined very accurately and can be carried out using alternative methods that are permissible but not entirely equivalent.

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Guidance on Reporting Additional IM Testing Capabilities (Part D) attempts to address this by providing a range of questions that are intended to help an organization in "drawing a picture" of their capabilities and competences, and to acknowledge their strengths and limitations. A test organization could advantageously demonstrate their capabilities to carry out complete, accurate and reproducible IM & IM/HC testing. The content of this questionnaire is not directly attributed to requirements within an IM and/or IM/HC test procedure, but rather to the capacity to go beyond mandatory requirements.

BENEFITS OF SELF-AUDIT

There are clear benefits in carrying out a self-audit procedure. These are:

- A compendium of equipment, capabilities and competences dedicated to IM IM/HC testing. It will help to:
  - Train staff new in the field of IM testing;
  - Quickly assess an organization's competences and capabilities to carry out a specific test for specific munitions;
  - Plan future IM testing development requirements;
  - Identify potential non-compliance prior to a formal ISO/IEC 17025 certification audit.
- Assurance that you have identified your health and safety, environmental and quality management system commitments as far as IM & IM/HC testing is concerned.
- Assurance that information is properly reviewed, documented, communicated and retained.
- Documentation that can be attached to proposals to demonstrate an organization's competencies, capabilities and performance in carrying out IM & IM/HC tests.
- Greater international recognition/confidence of your test organization, which will aid work on joint international programmes, since amongst other things:
  - Self-audited test centers will be listed in the new section of the MSIAC Directory of Insensitive Munitions Testing Facilities (L-106). If agreed, the self-audit report could be published in this document.
  - Self-audited organizations will be reported in the MSIAC newsletter as well the availability of the self-audit data.

The benefits of self-auditing have already been recognized by a few organizations. Rheinmetall (DEU) and NAMMO (NOR) are currently in the process of carrying out self-audits. FOI (SWE), Bofors Test Center (SWE) are planning to do it during the fall of 2010. Late 2010 or early 2011, CAEPE (FRA) intends to do it in the presence of international observers to add credibility to the process.

SUMMARY

The need for interoperability/interchangeability is not limited to small arms, it will apply to all munitions that can be used in weapons from more than one nation. As the need to certify munitions' interoperability/interchangeability expands, the need to certify IM IM/HC tests will grow and so will the need for accredited IM and IM/HC testing organizations.

The MSIAC audit procedure is a tool to help test organizations to document capabilities and competences, develop consistency in carrying out IM tests, report IM test results, assess these results, and demonstrate competencies and capabilities. In addition, the MSIAC self-audit procedure provides the technical building blocks necessary to obtain an ISO/IEC 17025 certification.

With this in mind, MSIAC would be very grateful for your help in improving this procedure by providing feedback on your intentions/actions regarding a self-audit, including any experiences you wish to share, or would like to be included in the MSIAC limited publication L-106. As the procedure matures and progress is made, it is hoped that this will be the first step towards an accreditation procedure documenting internationally acceptable IM test results, IM test reports and IM signatures, as well as internationally certified IM test organizations.

The MSIAC Self-audit Procedures Ed. 3 instruction manual and questionnaires will be available soon for download from the MSIAC secure website (https://sw.msiac.nato.int/secureweb). Your feedback can be addressed to:

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NATO HQ, B-1550, BZ S030
B-1110 Brussels, Belgium
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IM TECHNOLOGY GAPS WORKSHOP

"Reducing Effects from Shaped Charge Jets, Fragments and Explosively Formed Projectiles"



CLASSIFICATION

To facilitate discussions of technical data, the classification of the workshop will be **MSIAC Confidential**. Any papers or presentations provided may be classified up to this level.

ABSTRACT SUBMISSION REQUIREMENTS

- Title of paper
- 200-400 word Unclassified abstract in English
- Author(s) full name, address, telephone, fax and email
- Paper topics detailed at www.msiac.nato.int
- Abstract to be sent by 15 December 2010* at info@msiac.nato.int

PARTICIPANTS

The workshop is open to Government and Industry from MSIAC nations (Australia, Canada, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, UK and US).

REGISTRATION

There is no registration fee. In order to facilitate the organization of the workshop, you are requested to pre-register by 29 April 2011 via the form available on the next page or on the MSIAC website www.msiac.nato.int in the section "IM Technology Gaps Workshop".

Hotel accommodation on-site at the Defence Academy is possible and free of charge, but limited rooms are available. Therefore, pre-registration is recommended as from now.

GENERAL INFORMATION

Dates: 20-24 June 2011

Location: Instituut Defensie Leergangen (IDL)
The Hague, The Netherlands

Website: www.msiac.nato.int (see IM Technology Gaps Workshop)

Inquiries: Technical Coordination - Dr Pierre-François Péron p-f.peron@msiac.nato.int
Administration - Valérie Cousens info@msiac.nato.int

Schedule:

Deadline for Abstracts:	15 November 2010 (*Prolonged to 15 December 2010)
Authors Notification:	7 January 2011
Deadline for Pre-registration:	29 April 2011
Papers due to MSIAC:	29 April 2011
Presentations due to MSIAC:	31 May 2011

IM TECHNOLOGY GAPS WORKSHOP

PRE-REGISTRATION FORM

Please complete and return this pre-registration form by 29 April 2011
E-mail: info@msiac.nato.int or
Fax: +32-2-707-5363

Participant			
Name		**Phone**	
Organisation name and address		**Fax**	
		Email	
		☐ **Government** ☐ **Industry**	**Hotel accommodation on-site*** ☐ **Yes** ☐ **No**

Do you intend to present a paper? ☐**Yes** ☐ **No**
(Deadline for submission 15 November 2010)

Paper title:

Areas of expertise (please tick one or several boxes)	
Fragment Impact Threat	☐
Shaped Charge (SC) Threat	☐
Explosively Formed Projectile (EFP) Threat	☐
Gun Propellant Charge Systems	☐
Rocket Motors	☐
Anti-Armour Warheads (SC, EFP, etc)	☐
Blast Fragmentation and General Purpose Warheads	☐
Initiation/Ignition Systems	☐
Energetic Materials	☐
Packaging	☐
Munitions in Operations	☐
Design	☐
Testing	☐
Procurement	☐

* Limited hotel rooms are available on-site at the Defence Academy and free of charge.

NATO ALLIED PUBLICATION

MSIAC has assumed the duties as the technical repository of two NATO Allied publications. AASTP-1, Manual of NATO Safety Principles for the Storage of Military Ammunition and Explosives and AASTP-5, NATO Guidelines for the Storage, Maintenance and Transport of Ammunition on Deployed Missions or Operations.

AASTP-1 has four parts plus an Introduction to the manual. It is approximately 600 pages with five custodians managing their respective part of the document, i.e.,

CANADA	Introduction
UNITED KINGDOM	Part I
GERMANY	Part II
NORWAY	Part III
UNITED STATES	Part IV

All four parts are complimentary, but due to the nature of having four nations responsible for writing their respective parts, the consistency, such as format and use of language plus the chance of losing and/or repeating information is likely to occur. A formal editorial working group existed at one time charged with managing AASTP-1 for consistency, and responsible for coordinating actions with all affected part administrators, however this working group was dissolved years ago. In an effort to produce a better product that will be used by the NATO Alliance, MSIAC was requested to provide more support to the NATO Ammunition Community and accept the task as repository for AASTP-1.

AASTP-5 has two parts, but only one custodian, the Netherlands. However the challenges of managing the document are very similar to AASTP-1 therefore both the custodian and AC/326 Subgroup 6 Chairman requested MSIAC also serve as the repository for the Allied Publication.
Key Responsibilities will include:

a. Post the current AASTP-1 change in progress on the MSIAC website and provide access to all AC/326 nations requesting access.
b. Serve as the Change Proposal Administrator for Nations to submit change recommendations. Maintain a logbook and assign a control number to the proposal submitted.
c. Review all Change Proposals to determine if the proposal is administrative in nature or technical. Administrative changes will be coordinated with the appropriate Custodian. MSIAC will provide a recommendation to the official custodian to adopt the change or not.
d. MSIAC will review technical change proposals and provide action recommendations to the appropriate custodian (for example request the author submit an IWP, or request supporting documents for the proposal, or offer pro/con arguments for the proposal.
e. MSIAC will maintain a “working copy in progress” of the next edition or change to AASTP-1 for all to access, read and critique.
f. MSIAC will serve as a technical point of contact for all four parts to those requesting clarification or interpretation of a standard within the document.
g. MSIAC will coordinate the processing of the Allied Publications with all affected custodians, chairmen, and appropriate NATO organizations.
h. Prepare and brief the status of changes to the AC/326 Subgroup 5 meetings.
i. Facilitate Editorial Working Group Meetings to resolve and clarify issues with the progress of writing and publishing new changes/editions of AASTP-1.
j. Liaise with other proponents of AASTPs, particularly AASTP-2, 3,4 and 6 in an effort to reduce redundancy and attempt to maintain a suite style format with all above mentioned AASTPs.

The services provided by MSIAC support the MSIAC Member Nations, but the efforts also support all NATO Allied Nations engaged in the planning and construction of ammunition storage depots or facilities in peacetime and in deployed missions or operations.

TO: MSIAC
t.taylor@msiac.nato.int

cc: Custodian of Part Affected
(CA-Intro, UK-1, GE-2, NO-3, US-4)

For MSIAC use only)

Serial Number .....

Date Received .....

AASTP-1 CHANGE PROPOSAL/COMMENT FORM

PART A: (to be completed by the originator)

Name: . . . . . Job Title: . . . .

Nation: . . . . . Organisation: . . . . . .

Telephone: . . . . . Email: . . . . . .

AASTP-1 Details:

Part:	Chapter/Annex:	Section:	Paragraph(s):

Observation:

Proposed Text:

Supporting Evidence (Reports, Trials, etc):

PART B: (for completion by the appropriate AASTP-1 Custodian)

Approved? Yes/No For inclusion as an amendment to: . . . .

Reason for Non–approval: . . . . . .

. . . . . .

. . . . . .

Signature: . . . . . Name: . . . .

Custodian of Part:. . . . . Date: . . . .

LATEST PATENTS OF INTEREST

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European Patent Office
Office européen des brevets

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(30) Priority: **23.03.2009 GB 0904929**

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(54) Insensitive munition

(57) This invention relates to a novel insensitive munition (1) comprising one warhead and also munitions comprising one or more warheads (1). In particular, the invention lies in the field of insensitive munition warheads (1). There are further provided methods of preparing the warheads of the invention, methods of controllably detonating the warheads and a kit suitable for preparing such a warhead. The warhead (1) comprises at least two portions (3) of high explosive separated by a non-detonative material (8), wherein each portion (3) has a cross section below its critical detonation cross section, and wherein the at least two portions (3) are arranged such that the total cross section of the at least two portions (3) exceeds the critical detonation cross section of said high explosive, such that in use only simultaneous detonation of the at least two high explosives (3) causes detonation to occur.

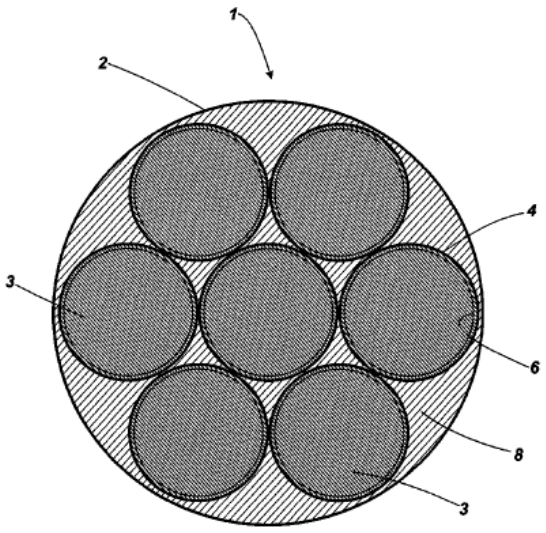

Fig. 1

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EP 2 233 879 A2

ACCIDENTS REPORTING

3 July-23 September 2010

(Re-printed with the permission of ility engineering (www.saunalahti.fi/ility) from their Hazards Intelligence (Hint) Journal)

3 July - Russia

100703-09-B Near Biysk, Altai Territory. Sibpribormash. An explosion at a military base in southern Siberia killed at least six soldiers. Two military engineers – a major, and a lieutenant-colonel – along with four employees of a local munitions company died in the explosion which occurred as they were transporting gunpowder and munitions – possibly outdated material, due for disposal – on a truck in the military area. The truck was destroyed. The incident occurred on July 3, but was not reported until July 5.

On July 6, it was reported that workers dismantling defective ammunition with a chain saw caused the explosion. The Investigative Committee confirmed that two of the dead were military officers, while the rest worked for Sibpribormash, a defence company that owned the ammunition. Sibpribormash said the firing range belonged to the Interior Ministry, but the Ministry said it did not own it any more. Investigators were unable to clarify the issue.

4 July - China

100704-01 Lishui City, Zhejiang Province. An explosion occurred in a police building, injuring three civilians who were passing by. The explosion occurred at about 08:03 in a waste explosive warehouse on the sixth floor of the building housing the Public Security Bureau of Qingtian County.

Police said three civilians who were walking past the building were cut by glass shards following the explosion. Two of the civilians have since been discharged from a local hospital while a third remained hospitalized for treatment of a serious head wound.

13 July - USA

100713-01-A Huntsville, AL. Redstone Arsenal. Officials at Redstone Arsenal were investigating a fire that broke out in Building 7298, in Redstone's Test Center. No one was hurt. The fire started at 11:55. Flames caused partial damage to the building, but fire-fighters worked quickly to prevent the fire from spreading. Arsenal officials were assessing the damage. They have not said what caused the fire.

On July 15, it was reported that RTC personnel were conducting a Hellfire missile test at the time the fire was reported. Arsenal spokeswoman, Kim Henry, said regular "Stockpile Reliability Testing" is done to assure that soldiers' weapons are ready for combat.

As part of standard procedures in this kind of incident, an Explosives Ordnance Disposal unit from Fort Campbell, Kentucky, arrived on the night of July 13 and confirmed the fire was out. On July 14, they examined the area and set up operations to begin safely removing any explosive materials from the scene. Henry said the team was expected to begin the work that night and complete it midday on July 15, adding: "In the meantime – to maintain absolute safety – all incident-response personnel will continue to remain at a safe distance". A team will be assembled to assess damage and investigate the cause of the fire.

20 July - USA

100720-02-A Hooks, TX. Day & Zimmermann. A worker at Lone Star Army Ammunition Plant (LSAAP) was critically injured when a grenade exploded. Officials said the woman was holding the grenade when it went off. She suffered injuries to the upper part of her body, including her arms and face. She was airlifted to LSU Hospital in Shreve-port, where she was listed in critical condition. Day & Zimmermann is the contractor that operates LSAAP.

20 July - Austria

100720-11 Matrei, Osttirol. A worker was killed in an explosion at a construction site near the Obertaxer Alm. A load of explosives suddenly exploded, and an excavator operator from Neukirchen am Großvenediger (Salzburg) was blown to pieces. How the accident at the construction site occurred is not yet clear. Franz Riepler of the police department Matrei said an explosives expert and police investigators flew by helicopter to the crash site at 1,600 metres above sea level.

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The workers on the Obertaxer Alm, near the Felber Tauern, were working to build a safety wall. According to initial findings, the worker should have drilled, using a special excavator, some holes for the explosives in the ground, but they unexpectedly blew up.

1 August - Germany

100801-01 Niederdorfelden, Hessen. For still unknown reasons several 125-gallon drums of nitro-cellulose granules detonated at a chemical company in Niederdorfelden, and the fire spread to the entire warehouse. Seventy fire-fighters Niederdorfelden, Schöneck and Maintal quickly brought the fire under control. Nobody was injured. According to police, nitrocellulose is explosive, but does not release any toxic substances.

3 August - UK

100803-07 Aldermaston, Berkshire. Atomic Weapons Establishment (AWE). A fire started in a building in the non-nuclear explosives manufacturing section of the site at about 21:00. AWE manufactures and maintains warheads for the UK's nuclear deterrent on behalf of the Ministry of Defence. Fire crews from the complex and six crews from the Royal Berkshire Fire and Rescue Service were called to tackle the fire, which was out by 08:00 the following morning. One male worker from AWE Aldermaston sustained minor injuries. While the fire crews tackled the blaze, 14 residents of Red Lane, which borders the northern end of the site, were evacuated to the Aldermaston Manor hotel or the Apollo Hotel in Basingstoke. They were allowed to return to their homes by 10:00 the next morning.

AWE announced it will commission an independent inquiry. The results will be sent to local authority members as well as the Nuclear Installations Inspectorate, which is part of the Health and Safety Executive. Robin McGill, chief executive at AWE said: "We will make our findings public by briefing the AWE Local Liaison Committee which is made up of representatives of local authorities in Hampshire and Berkshire". Earlier in the day a spokesman for AWE said: "A full investigation into the causes of the incident, which has no radiological implications, will be undertaken. The Ministry of Defence and AWE's regulators have been informed".

1 September - USA

100901-03 Near Johnson City, TN. (www.johnsoncitypress.com/News/Article.php?ID=80632). Widener Reloading and Shooting Supply Inc. An ammunition storage facility exploded just after 10:00. No one was injured in the blast, according to Johnson City Interim Fire Chief Mark Finucane. The building, owned by Stan Widener, housed materials he used in his business, Widener Reloading and Shooting Supply Inc. Officials said no one was at the building at the time, but Widener was near enough to hear the blast and met emergency responders to take them to the site. Because of the condition of the driveway, the only fire vehicle able to get to the location was a brush truck, designed for off-road and rough terrain.

Finucane said: "The owner escorted our personnel back to assess what we had. What we found was a 30-by-30 metal frame building that suffered heavy damage from what appeared to be an explosion. We determined that inside the building was ammunition casings and fireworks. The cause of the fire has yet to be determined. Law enforcement is on the scene and they are looking at the scene as a criminal investigation until further notice". Finucane said that the fire would burn itself out. The location was remote enough to not present a danger to residents or structures.

6 September - Chile

100906-07-A Tierra Valenzuela, province of Atofagasta, Soquimich. Several men were killed when explosives detonated near the Elenita mine in the Chilean province of Antofagasta in the north of the country. The incident occurred around 16:30 in the mining district known as Tierra Valenzuela, about 120 kilometres from the regional capital, also called Antofagasta.

On September 7, police said six people died when a cargo of industrial explosives detonated while being transferred from one truck to another. There was no collision. Police said initially that four were killed. The dead men worked for potassium nitrate miner Soquimich and were transporting a cargo of Ammonium Nitrate Fuel Oil (ANFO) explosives to a mining company in the area. Experts as yet have no explanation for why the explosion occurred. Police Lt. Col. Rodrigo Alegria told reporters that ANFO is a very stable material that requires a detonator to explode. The ANFO was being transported in sacks weighing 25 kg (55 pounds), but so far authorities do not know the quantity of explosive that the victims had with them. The men had stopped their trucks by the side of the road when the explosion occurred. Police said the delay in establishing the exact number of

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victims was due to the fact that the body parts were scattered many metres (yards) from the blast site by the force of the explosion.

7 September - Belgium

100907-12 Seneffe, Province of Hainaut. Mecar SPRL. A fire broke out around 08:10 in the large calibre ammunition assembly building, causing explosions audible for kilometres around for about two hours. One employee felt ill and was taken to hospital for a check-up. Because the plant personnel were unable to master the fire, emergency plans were activated. The factory was quickly evacuated. The smoke posed no danger to the population.

The fire started on a wooden pallet containing 54 finished grenades. It was decided not to extinguish, but wait at a large distance till the explosions stopped. The area was checked by helicopter. Traffic was kept at a distance of 4 km. The EOD still has to come because there are still explosives in several buildings that are not yet accessible. Only when the EOD have accomplished their job can the experts start their investigation and the cleaning up can start. The safety precautions worked. The factory is built in an uninhabited area and consists of separate buildings. When one of these explodes, other buildings are safe.

9 September - USA

100909-06 Batesville, AR. Seven construction workers were injured in an explosion in a tunnel being dug beneath the Batesville Municipal Golf Course. Independence County Sheriff Alan Cockrill said the workers were digging a tunnel underneath the golf course, using explosives. He said that workers entered the tunnel after an explosion to dig another hole to place more explosives when they accidentally hit remnants of the previous explosives and a blast ensued. The explosion occurred about 13:45. Those injured were taken to the White River Medical Center in Batesville. Sheriff's Deputy Michael Daar said one of the men injured was transferred to a trauma unit at a Little Rock hospital. Mayor Rick Elumbaugh said the men were working on a new wastewater treatment plant.

14 September -USA

100914-05-A Toone, TN. (www.myfoxmemphis.com/dpp/news/local/091510-kilgore-plant-employees-return-to-work). Kilgore Flares Company. An explosion and fire injured six people, three of them critically, at a plant that makes flares for the military. Sheriff John Doolen of Hardeman County said that fire-fighters at the plant were letting the fire burn itself out, adding: "There's a lot of material in that building. I just think there's a possibility of another explosion". Mayor Willie Spencer of Hardeman County said the cause of the explosion was not known. In the last 25 years, five workers have died on the job at Kilgore Flares.

Kilgore CFO Mike Rooney told reporters there was no explosion. Instead he described what happened as a flash fire. He said the fire department decided to let the materials burn out, but he would not specify what type of materials were burning, explaining: "There's some trade secrets as well as classified information for the government". Rooney said several executives headed to Memphis where the three victims are being treated for severe burns, adding: "We take their safety very seriously. It's our first priority. This has really touched everyone in the company". Rooney said once the fire is extinguished, the investigation into the cause of the incident will begin.

On September 17, company President, Christopher Watt said the company would resume manufacturing its flares at 04:00 on Monday, September 20. Kilgore, however, will reopen only those sections of the plant that do not use the same manufacturing processes suspected to have caused the fire. Watt said the flash fire was a freak accident, saying he found its cause baffling because of where it occurred, adding: "I am very anxious to see what unfolds with the investigation, because I am not sure it's ever happened in the industry". Kilgore was not placed under a "stop-work" order from any federal or state agency since the fire, Watt said. He said the decision to close the plant was his.

Watt said Kilgore's manufacturing site has 200 buildings, including some administration and maintenance structures. The federal government requires the buildings to be far enough apart so that an explosion or other problem does not affect another building. The fire occurred in building No. 35, which sits on a hill in the northeast quadrant. No portion of the building is buried below ground. It is about 800 square-feet, and separated into two sections by a concrete wall and two, one-inch-thick reinforced steel doors.

One side of the building is the final assembly side. Workers insert their hands through slots into a protective box,

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similar to a laboratory glove-box. Workers take a “grain” which is a mixture of magnesium, Teflon, other chemicals and a binder, and wrap them in a foil-like material. They then insert the materials into the flare’s outer casing and cap the flare. Each flare has a specific “burn profile”, Watt said, that mimics the exact heat emissions of the aircraft it is designed to protect.

The other half of the building is called the “slurry room". This is where the inner core of the flare is hand-dipped in liquid magnesium, Teflon and other ingredients, known as slurry. The slurry is coated over the flare’s core to make it burn correctly. The slurry is mixed in a separate building and is manually transported to the slurry room on carts. The liquid is highly flammable, Watt said, and could be ignited by a static electric charge. It was on this side of the building where the fire occurred.

The fire was only the second incident that caused injuries since Kilgore Flares was bought by Chemring in 2001. The first incident happened a few months after the company took over the manufacturing plant. Chemring has invested more than $45 million in safety related improvements since 2001, Watt said. Kilgore had amassed more than 4.5 mil-lion production-related hours without a work-related injury before the fire.

The company says on its website that it supplies decoy flares to counter the threat of heat-seeking missiles. Kilgore earlier this year announced a $22.5 million order from the Department of Defense for flares for B-52 aircraft. Kilgore was bought in 2001 by Chemring Group PLC, a British company with operations throughout the world.

15 September - USA

100915-02 Orlando, FL. DSE Fusing Inc. LLC. Orange County Fire-fighters responded just before 11:00 to a medical call involving an injured adult at DSE Fusing. They upgraded the call to a hazmat situation, based on pre-incident plans: DSE manufactures ordnance. According to initial reports there was a small ammunition explosion that injured a woman working on an assembly line. Fire-fighters characterized the incident as an industrial accident, and said they took precautions to ensure the safety of responding fire-fighters. They found however that no hazardous conditions were present. The woman sustained facial and chest injuries, but persons at the scene said she was in stable condition.

17 September - Sri Lanka

100917-01-B Karadiyanaru, near Batticaloa. At least 25 people, most of them policemen, were killed when vehicles carrying explosives accidentally blew up at a police station near the eastern city of Batticaloa. Over 50 were injured. MajGen Ubaya Medawala said the explosives were being signed over to two Chinese road construction contractors. At least 40 people are reported to have been injured.

MajGen Medawala said it was an accidental explosion. He said the explosives were being loaded on to several vehicles at the police station when one of them blew up, setting off the other explosives. He said the cause of the initial blast was unknown, but “no sabotage is suspected at the moment”. The police station was thought to have been destroyed. Medawala said: “We believe over 60 have died - this includes two Chinese contractors and the rest policemen".

Later, Medawala said he initially feared, incorrectly, that the death toll was as high as 60, in light of the enormity of the damage caused by the blast. In fact, the explosion killed 16 policemen and nine civilians, including two Chinese citizens, and wounded 52 others. Among the civilian casualties were farmers visiting the agriculture office and passers-by.

Chinese firms are heavily involved in road building and the construction of two ports in Sri Lanka. The Batticaloa area was once controlled by the Tamil Tiger rebel group. Since their defeat last year, the government has begun to rebuild roads and other infrastructure in the region.

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17 September - Ukraine

100917-08 Black Sea, off the Crimean Peninsula. Two artillery shells detonated aboard an amphibious assault ship during naval war games off the Crimean Peninsula, injuring at least four persons. A source in the Ukrainian Naval Forces said the artillery shells that exploded were "life expired". The incident occurred on board the Kirovograd medium amphibious assault ship, seriously injuring four sailors, in the Crimean training ground Opuk during the Vzaimodeistviye-2010 [Cooperation-2010] military exercises. The injured servicemen were reportedly admitted to hospital in a grave condition. Ukraine's defence authorities have provided no official comments over the incident. The UNIAN news agency said the defence minister, Mykhailo Yezhel, had been supervising the exercises.

The Ukrainian Naval Forces source said: "Firing expired artillery shells is a common practice that allows to kill two birds with one stone: both to train and to get rid of obsolete ammunition. During gunnery exercises, a ship is strongly shaken – even ceiling lamps in corridors fell down. It's quite possible that the expired shells detonated. Fortunately, they were quite small, and no one was killed". The source said that the incident would have been prevented if drill monitors had checked the ammunition's expiration date.

PROCUREMENT ISSUES PRESS REVIEW

If you have information you consider of relevance to this section please do not hesitate to contact MSIAC at info@msiac.nato.int

RAYTHEON WINS EXCALIBUR IB CONTRACT AS PROGRAMME HANGS FIRE

(www.janes.com – 31/08/2010 - 06/10/2010)

The current Excalibur Block Ia-1/-2 round (left) has a front end that is mechanically de-spun from its fin unit, but in the simplified Block 1b version (right) the entire projectile spins and uses a redesigned rear section with integral base-bleed unit and forward-folding fins

Raytheon has been awarded a USD 23 million contract to continue developing its version of the M982E1 Excalibur Block 1b guided 155 mm GPS-guided projectile design that beat a competing design from Alliant Techsystems (ATK).

Excalibur Block 1b is a development programme intended to produce a more reliable (93 per cent threshold, 96 per cent objective) and lower-cost Excalibur round (between USD74,000 USD100,000 in its initial version M982). The current contract is planned to include two parts - one to finalise the design and another for qualifications - with a possible total contract value of USD 60 million.

If government qualification tests are successful the company could produce as many as 3,430 projectiles for the Army.

Excalibur 1b shell has a unitary blast/fragmentation warhead which incorporates several IM features to mitigate warhead reaction to thermal and mechanical aggressions such as insensitive explosive PBXN-9 (92% HMX, 6% DOA and 2% Hytemp), internal polyethylene liner, lateral venting holes and special packaging. The shell in its container passed bullet impact, fragment impact, fast cook-off and sympathetic reaction tests. It however exhibited a type III reaction in slow cook-off configuration (3.3°C/hour).

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120 MM NAMMO IM HE-T ROUND

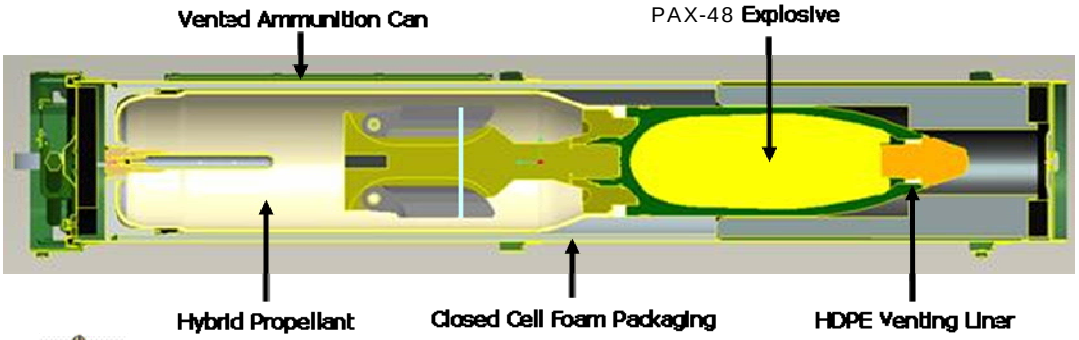
(www.janes.com – 06/07/2010)

The 120 mm IM HE-T tank round is a joint effort between Nammo, Norway and GD-OTS, USA to develop an IM version of Nammo 120 mm HE-T (Composition B filling). It was purchased by Spain in December 2009, with deliveries scheduled for early 2011. It has also been qualified by the Norwegian Army and a purchase is expected in the next months.

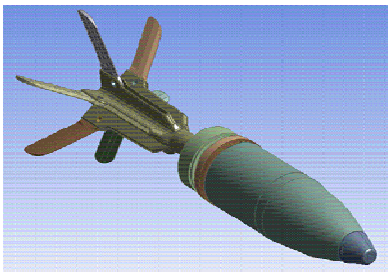
The 120 mm IM HE-T round includes a new insensitive melt-cast explosive PAX-48 developed by BAE Holston, USA (DNAN, NTO and HMX), a LOVA propellant called HYBRID and produced by St Marks (GD-OTS), USA. The munitions vulnerability has also been reduced by adding a plastic liner between the fuze and the warhead nose to deconfine the explosive filling in case of thermal aggressions and a container with plastic windows to vent the gun propellant in case of propellant unplanned reaction inside the container.

IM tests have been conducted in the warhead and gun propellant sections against the following threats: fast cook-off, slow cook-off, bullet impact, sympathetic reaction and shaped charge jet (Rockeye). The munitions were in their container without added mitigation, except in fast cook-off (no container). The 120 mm IM HE-T passed all the trials successfully. It should be noted that the live acceptor bodies were recovered intact after sympathetic reaction test and the munition did not detonate to Rockeye jet impact.

The 120 mm IM HE-T round received the MSIAC IM Technical Award at the 2010 IMEMTS conference (see page 17 of this Newsletter).



Fully Assembled Round



Flight View

120 mm IM HE-T and Implemented IM features

ACQUISITIONS

RHEINMETALL DENEL MUNITION INVESTS MILLIONS IN PLANT UPGRADES, NEW PRODUCTS

(www.defenceweb.co.za – 25/09/2010)

Rheinmetall Denel Munition (Pty) Ltd (RDM) has invested some R260 million (€ 27 million) in plant and facility upgrades since the establishment of the company in September 2008. The company says this has allowed innovative work to continue including the development of a whole new range of medium velocity 40mm ammunition. Also nearing completion is a new minefield breaching system.

The company, a 51%-49% joint venture between Rheinmetall and Denel, is also further developing and qualifying its improved range of 60mm, 81mm and 120mm mortar ammunition as well as its range of 105mm and 155mm artillery ammunition that is in production for the United States and United Arab Emirates.

RHEINMETALL TAKES LAINGSDALE OFF TELLUMAT

(www.defenceweb.co.za – 06/10/2010)

Rheinmetall Waffe Munition (RWM) and Rheinmetall Denel Munition (RDM) have purchased Laingsdale Engineering of Cape Town.

Laingsdale Engineering has for the last 29 years "focused its expertise and technology on fuzes, safe-and-arming devices, kinetic energy weapons and a variety of naval applications." Its current range includes fuzes for low velocity and high velocity 40mm grenades; 60mm, 81mm and 120mm mortar bombs; 76mm naval fuzes; the 76mm HE shell of the Rooikat armoured car; the HE round for the Olifant 105 mm tank gun; and fuzes for the ammunition fired by the G5 and G6 long-range guns as well as other 155mm systems. Other products include 76mm sabots (for the armour piercing fin stabilised discarding sabot projectile used by the Rooikat) various safe and arm devices, and small precision components for the electronics and other industries.

Fuzes for 40 mm Grenades Produced by Laingsdale

Laingsdale Engineering has about 180 employees and had sales in FY 2009 of approximately €10 million (about R96 million). Rheinmetall Waffe Munition, Germany, will own a 51 percent stake in Laingsdale with Rheinmetall Denel Munition holding the remainder. The takeover will take effect 01 November 2010.

LASERFICHE WEBLINK

Since the beginning of November a Laserfiche weblink has been implemented and provides instant access for both MSIAC member nations and AC/326 users to a customizable web portal.

Users with a previously established username and password have access.

https://www.msiac.nato.int/weblink/Welcome.aspx

This portal enables authorized persons to securely search, browse and retrieve read-only documents. Services provided to our member nations are based on privileges:

- SC & NFPOs
- Hazard Classification
- IM State-of-the Art
- National IM Policies
- MOU
- Software and Databases
- Workshops
- Posters
- Accidents
- MSIAC Open and Limited Publications
- Working Groups
- Special Projects

The following AC/326 information is available:

- Decision Sheets & Agenda
- IWPs by Nation
- Documents
- Notices
- Publications (STANAGs, AASTPs, AOPs etc.)
- Presentations
- Historical AC/258 and AC/310 information.

CONTACT INFORMATION

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🖷 32-2-707.53.63

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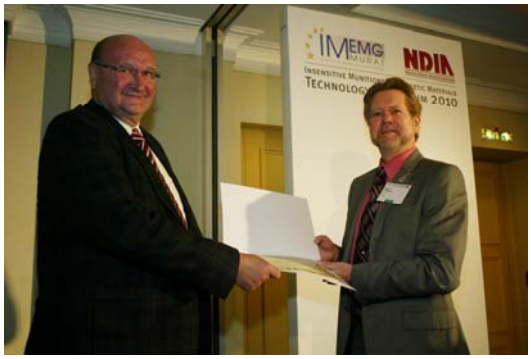
info@msiac.nato.int

MSIAC IM AWARDS
Munich, Germany

Roger Swanson presented the MSIAC IM Awards at the 2010 Insensitive Munitions and Energetic Materials Technology Symposium held at the Marriot Hotel in Munich, Germany on 11-14 October 2010.



Mr Roland Wild
former Deputy Director of German WIWEB

Mr Vegard Sande
Vice President Technology, NAMMO AS

THE INSENSITIVE MUNITIONS AWARD FOR CAREER ACHIEVEMENTS
was granted to
Mr Roland Wild for career dedication and his outstanding contribution to the cause of Insensitive Munitions, for the benefit of the international munitions community.

THE INSENSITIVE MUNITIONS AWARD FOR TECHNICAL ACHIEVEMENT
was granted to
NAMMO AS, Norway
GT-OTS, USA
GT-OTS, St Marks Powder, USA
BAE Systems, Holston, USA
for
"Development of the 120mm IM HE-T Round"

Mr Virgil Fung
Manager, R&D Formulations
BAE Systems, Holston, USA

Mr Andrew Wilson
formerly BAE Systems, Holston, USA

HAPPY BIRTHDAY NIMIC/MSIAC

NIMIC/MSIAC will be celebrating 20 years of existence next year and we intend to commemorate this.

A one-day workshop focusing on changes and advances in Insensitive Munitions and Munitions Safety over the 20 years of NIMIC/MSIAC is planned for 5 April 2011 in Brussels followed by an anniversary dinner.

A stand displaying MSIAC services and products will be in place on April 5 and 6 in the NATO HQ Press area in Brussels.

We also intend to re-design our website and introduce our new logo below.

MSIAC
Munitions Safety Information Analysis Center

LATEST PUBLICATIONS

(Available on the MSIAC secure website https://sw.msiac.nato.int/SecureWeb/ or on request at info@msiac.nato.int)

OPEN PUBLICATIONS

O134 MSIAC IM Databases - An Efficient Toolbox to Assess IM Signature by Dr Pierre François Péron, October 2010

O135 Changes to UN Test Series 7 for Hazard Division 1.6 Explosive Articles by Dr Michael Sharp and Brent Knoblett, DDESB, USA, October 2010

0136 MSIAC Audit Procedures of IM & IM/HC Testing Organizations' Capabilities and Competences - A Step Towards Certifying Organizations Carrying Out Munitions Safety Tests by Pierre Archambault, October 2010

LIMITED PUBLICATIONS

L169 Compendium of Interior Ballistics Codes for Guns by Pierre Archambault, October 2010

NEW ON OUR WEBSITE

- Poster on Combustion Properties of Blackbody Infrared Flare Compositions Based on Perfluoralkylated Tetrazolates, Magnesium and Viton® by Dr Ernst-Christian Koch, T.M. Klapotke, A. Hahma, H. Radies and S. Scheutzow displayed at the ICT Conference, June 29-2 July 2010.
- Laserfiche weblink - see page 17 of this Newsletter.