

AFSL FACTORY NEWS

NEWS IN BRIEF

RELOADABLE TUBES MUST WITHSTAND SHELL MALFUNCTION. A new provision for reloadable shell devices requires tubes to withstand the explosion of a shell inside the tube without rupturing. AFSL will test by inserting one shell upside in the tube and igniting it. If the tube ruptures or the base shatters, the item will fail. The action is intended to reduce the potential for injury to consumers by containing a shell that malfunctions inside the tube. **Page 1.**

CHANGES TO EX NUMBERS PROGRAM ANNOUNCED. A representative from the U.S. Department of Transportation announced the agency is planning to withdraw approximately 2000 EX Numbers currently in use. Owners of the numbers must apply to have new numbers issued. The withdrawal is expected in the summer of 2005 with a grace period of one year. The announcement was made in a seminar in Chang Sha, Hunan sponsored by AFSL and APA. AFSL will assist factories in submitting applications for new numbers at no charge. **Page 1.**

NEW STANDARD FOR ROMAN CANDLES GOES INTO EFFECT AUGUST 1ST. The following changes to the Roman Candle Standard become effective August 1, 2005: (a) 20 gram limit on total chemical composition; (b) 5 gram per shot limit; (c) a minimum of 5 and not more than 10 shots per device; and (d) an equal number of shots for all devices within a retail package. **Page 2.**

HARD DISCS ELIMINATED IN AERIAL DEVICE INSERTS. Hard discs that may act as a projectile may no longer be used in aerial shell inserts. Includes concrete, plastic, wooden, and hardened paper discs. **Page 3.**

MULTIPLE LINKED COMPONENTS MUST HAVE SINGLE IGNITION POINT. All AFSL tested fireworks must have a single fuse and no connector points. **Page 7.**

AFSL HIRES PROGRAM LIAISON IN CHINA. AFSL hired William Zhou, formerly of Intertek Testing, to work as a China Liaison on behalf of AFSL. Beginning August 1, he will monitor program operations and assist members in meeting AFSL requirements. **See page 3.**

RELOADABLE LAUNCHER TUBES MUST WITHSTAND SHELL MALFUNCTION

Manufacturers of reloadable tube aerial shell devices are looking at ways to meet a newly established provision that requires launcher tubes to withstand the explosion of one shell inside the tube without rupturing. The provision, set to go into effect August 1, 2005, will require many manufacturers to substantially strengthen the launcher tubes currently being marketed.

Responding to concerns that consumers

could be injured if a reloadable shell malfunctions inside the tube and the tube ruptures, AFSL amended the reloadable shell standard in February 2005 to include the malfunction safeguard.

The new language states *“The tube, including its base, packed in a reloadable shell kit must be capable of withstanding the explosion of any shell in the kit, without fragmenting, when the shell is inserted in the tube upside down and*

ignited.”

The Standards Committee evaluated 14 different models of reloadable launcher tubes, including tubes manufactured from paper, plastic, and fiberglass. One shell was placed upside down into each tube and ignited. The intent was to cause the device to malfunction deliberately in a manner that simulates what could happen if a consumer

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CHANGES TO EX NUMBERS PROGRAM ANNOUNCED BY DOT AT SEMINAR IN CHANG SHA, HUNAN

At a seminar hosted by AFSL and APA in Chang Sha, Hunan, the U.S. Department of Transportation (DOT) announced major changes is the way EX Numbers are issued for fireworks shipped to the United States.

Dr. Richard Tarr, Director of the Office of Approvals for DOT, advised the industry that approximately 2000 EX Numbers currently being used by the manufactur-

ers, shippers and U.S. importers will be withdrawn within the next year. Companies using the numbers must apply for new EX Numbers to comply with the DOT requirements that all fireworks imported into the U.S. have a valid EX Number.

In his first meeting with the fireworks industry in China, Dr. Tarr also stated that all EX Numbers eventually

will have an expiration date assigned to them, making it necessary for owners of the EX Numbers to apply for re-issuance of the numbers after 5 years.

Dr. Tarr and Dr. John Conkling, AFSL Director and Technical Advisor, spent the morning describing the upcoming changes and responding

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LALUNCHER TUBE INTEGRITY

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misused or mistakenly placed the shell into the tube improperly.

On six models, the tubes remained intact and did not sepa-

tube to travel up to 180 feet from the point of ignition.

After reviewing the results of testing performed at this and the previous meeting, the Committee recommended to the Board of Directors that the reloadable shell standard be amended to include the abuse test.

NEW PROVISIONS FOR ROMAN CANDLES APPROVED

Roman Candle devices will be required to meet new provisions under the AFSL Standards beginning August 1, 2005. The requirements include (a) a limit of 20 grams of chemical composition per tube; (b) a limit of 5 grams of chemical composition per shot; (c) a minimum of 5 shots per candle in addition to the existing maximum of 10 shots per Roman Candle tube; and (d) a provision requiring that all Roman Candles in a retail package contain an equal number of shots.

In establishing the new provisions, AFSL is addressing the potential risk of injury associated with Roman Candles that may be hand-held by consumers. The common belief is that consumers sometimes shoot the candles at each other, thereby creating a potential for injuries if the shots from a candle break in or near a consumers' face.

In a recommendation to the Board of Directors, the Standards Committee noted that most other fireworks devices are subject to a specific pyrotechnic composition limit, yet the AFSL Standard for Roman Candles contained no such limit. Further, the Committee concluded that a limit of 5 grams per shot was needed to reduce the size and potential for injury in the event that a shot from a candle does function in or near a consumer's face or eyes.

The decision to require an equal number of shots per tube avoids confusion to consumers using candles from a single retail package containing different numbers of shots. For example, if one candle from the package contains 6 shots, while a second item contains 8 shots, a consumer could be led to believe the second candle also contains four shots. This increases the likelihood consumers may not

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Reloadable shell launcher tube that experienced base separation and fragmentation when the shell was ignited upside inside the launcher tube during Standards Committee testing.

rate from the base. On the remaining 8 models, the tubes ruptured and/or separated from the base. In several instances the rupture and/or separation was dramatic, allowing fragments or components from the shell or

The Board approved the recommendation at the February 11, 2005 Board meeting.

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Plastic reloadable tube that experienced severe blowout and warping when shell exploded upside down inside the launcher tube.

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AFSL ADDS CHINA LIAISON OFFICER TO QIP IN CHINA

AFSL has hired a Liaison Officer to work in China to coordinate activities under the China Fireworks Quality Improvement Program (QIP). Mr. William Zhou, formerly the Senior Supervisor for Technicians for AFSL's contract testing laboratory, Intertek Testing Services, resigned from that post will work directly for AFSL as an independent contractor.

Mr. Zhou will serve as the initial contact person for factories or Shippers who have questions or concerns about QIP operations. He also will provide

technical assistance to the factories and shippers on such matters as new requirements of the Standards, and will periodically review with the factories the test results for products tested by AFSL.

One of Mr. Zhou's first assignments is to begin meeting with factories that have had a significant number of shipments failed under the QIP. This is an effort by AFSL to assist factories in improving their level of compliance with the Standards by correcting repeated failures.

In announcing Mr. Zhou's appointment, John Rogers, AFSL's Executive Director stated "William's job here in China is to be an extension of our office in the U.S. He is our eyes, ears, and voice here on the ground, and should be the first point of contact whenever a program participant needs assistance from AFSL."



William Zhou, AFSL China Liaison Officer

"William's addition to our program is filling a need we have had since AFSL started operations in China.", according to Rogers.

"We are fortunate our program has expanded to the point that we can now fulfill that need."

AFSL considered several candidates for the liaison position before deciding on Mr. Zhou. "We believe William is a great choice for this position," said Mr. Rogers.

"He obviously knows the program well. He has a very positive working relationship with the factories and Shippers."

"Because of William's long association with Intertek, our biggest challenge is to convince the factories that he now operates independently of ITS, Mr. Rogers continued. "In short, they will have to learn to trust him to address their specific interests, and I am confident that over time they will."

Effective August 1, 2005, Mr. Zhou will begin operating from an office based in Liu Yang, Hunan. He also will travel frequently to AFSL Operations Centers in Bei-hai and Guangdong Province.

Program participants may contact Mr. Zhou on telephone number: 13874903088; Or by Email at: William.Zhou@afsl.org.

HARD DISCS IN AERIAL SHELL INSERTS ELIMINATED IN STANDARDS

At the February 2005 meeting, the Board of Directors approved a new provision eliminating hard discs in aerial shells inserts. The Standard for Comets, Mines, and Shells was amended to include the following language: ***"Insert tubes with break charges in mine/shell devices shall not contain pressed clay plugs, or separators, or any other hard internal components capable of acting as a projectile when the insert bursts."*** The modification is designed to eliminate the potential risk of injury associated with clay or other hard plugs or discs that become projectiles when the shell malfunctions at or near ground level or when the discs fall back to the ground after the shell functions normally.

The Board directed the Standards Committee to develop additional guidelines to assist manufacturers in defining the term "hard" in plugs and shell components before August 1, 2005 effective date of the requirement. The newly developed guideline states that "If the plug or disc is constructed of a material that allows it to be projected or propelled from the shell when the shell functions, and the disc or plug, or any significant piece of it, may forcefully impact the ground or a person, it is prohibited under the new requirement."

Types of materials included in the guideline include "concrete or similar composites; pressed clay; wood; plastic; and hardened, compacted, or treated paper." The guideline does not include specific size or weight limitations for the discs. The Standards Committee concluded that is not feasi-

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CHANGES IN EX NUMBERS

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to questions from the factories. They stated there will be a transition period of approximately one year to allow companies to apply for new EX Numbers. This transition period will reduce the impact of the DOT action on companies required to apply for new numbers.

Dr. Tarr and Dr. Conkling also developed and distributed to seminar participants a new EX Numbers application form that companies may use to apply for new numbers. The form, published in both English and Chinese languages is redesigned to help to streamline the process of applying for EX Numbers.

The new application form, along with a list of the EX Numbers to be withdrawn will be available for industry members on both the AFSL website, www.afsl.org; and the APA website, www.americanpyro.com.

1.4G Reloadable Shells and Kits

Dr. Tarr also announced that DOT intends to withdraw all existing 1.4G approvals for “bulk” aerial shells. Some of these approvals for items such as “Holiday Shell” and “Festival Ball” were issued years ago, and these EX Numbers have continued to be used to import into the U.S. cases of bulk shells for re-packaging into reloadable shell kits. DOT believes that these devices in

bulk form are properly classified as 1.3G fireworks.

Under the Standard for reloadable shell as well as the APA Standard 87-1, reloadable shell kits are limited to a maximum of 12 shells and a total of 400 grams of pyrotechnic composition per retail pack-



Participants in EX Numbers Seminar in Chang Sha. From left: John Conkling, Julie Heckman, Mr. Li, President of Liu Yang Fireworks Admin. Bureau, John Rogers, and Richard Tarr.

age. Each retail package also must contain one launcher tube.

The upcoming DOT notice, expected to be published in July or August 2005, will advise the industry that all reloadable shell kits imported into, or shipped domestically in commerce, in the United States will now have to comply with the limits described above for transportation as 1.4G fireworks.

Exceptions to Requirement for Issuance of New Numbers.

Dr. Tarr also stated that the only exception to the requirement for the issuance of new EX numbers will be for approvals that have gone through the normal DOT approval process that requires the testing of packaged fireworks products by an authorized testing laboratory. He advised companies holding such approvals to contact DOT to determine if their

RELOADABLE SHELLS

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The effective date for the new provision is August 1, 2005. Beginning on that date, all reloadable shell devices submitted to AFSL for testing will be tested for conformance with the new provision. AFSL will perform the test by placing one shell packaged with the reloadable kit inside the tube upside down. If the retail package includes tubes of different pyrotechnic compositions, AFSL will select the heavier shells for testing.

Any rupturing of the tube, separation from the base, or the expulsion of any debris or shrapnel from the device will cause the shipment to fail. Factories and Shippers in China have been notified of the modification to the reloadable shell standard and were provided details of the requirement and test procedure is training seminar conducted by AFSL.

The decision to include the launcher tube malfunction test was in response to concerns raised following an incident involving the death of a four year old girl who reportedly was struck by a component of a reloadable launcher tube. The Standard for Reloadable Tube Aerial Shell Devices already requires launcher tubes to withstand twice the number of intended firings without blowout. The Standard also requires that such devices identify the correct placement of the shell inside the launcher tube by the use of an “UP” arrow on cylindrical or other non-spherical shapes.

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NEW LABELING FOR CYLINDRICAL SHAPED RELOADABLES

The Standard for Reloadable Tube Aerial Shell Devices has been modified to include new language in the cautionary labeling requirement for reloadable shell devices that are cylindrical-shaped. The language is designed to reduce the likelihood that consumers will insert cylindrical-shaped shells upside into the launcher tube.

The reloadable shell standard currently requires cautionary labeling for spherical-shaped shells which states: "Put Ball Into Tube With Flat End Down and With Fuse Extending Out of Tube." However, the fact that many of the non-spherical shapes have flat tops as well as flat bottoms causes confusion to consumers as to which end goes into the tube first.

To address this concern, the Board approved the following language for devices with cylindrical or other non-spherical shapes: "*Put Shell Into Tube With Arrow Point Up and With Fuse Extending Out of Tube.*"

This modification works in conjunction with other provisions requiring that (a) shells must have an orienting loop that is securely attached, or a paper wrap, to maintain the correct orientation of the shell when placed inside the tube; (b) an existing requirement stating that "Individual shells that are cylindrical shaped or other non-spherical shape must bear the statement **"THIS END UP"** along with an arrow indicating the direction in which the shell should be placed inside the tube"; and (c) a provision also approved by the Board at the February 11, 2005 meeting requiring that launcher tubes must be able to withstand the malfunction of one shell inside the tube without fragmenting.

The provisions described above, in conjunction with the labeling new revision, all are intended to reduce the potential risk of injury associated with the malfunction of shells inside the launcher tube.

In an effort to assure uniformity in the industry in meeting the new provision, AFSL contacted the Consumer Product Safety Commission to deter-

mine whether CPSC also would adopt the new language for cylindrical shaped reloadable shells. CPSC indicated that it does intend to require under its testing program cylindrical or other non-spherical shaped shells to bear the statement "Put Shell Into Tube With Arrow Point Up and With Fuse Extending Out of Tube." CPSC stated that this language is necessary to adequately inform consumers of the correct usage of the product under the CPSC regulations.

Due to concerns about the potential risk of injury associated with incorrectly inserting shells into launcher tubes, the provision was adopted with a very little lead time allowing manufacturers to exhaust inventories with the old labels. Factories and Shippers already have been notified of the new language provisions and advised to comply with the new language no later than June 1, 2005.

HARD DISCS IN ARIAL INSERTS

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ble to determine what size or weight is capable of causing a significant injury. Other factors that affect injury potential include distance from the consumer, the force with which the shell breaks, etc.

AFSL will test for the requirement by dissecting the shell and determining whether the disc is capable of causing a significant injury if a person is struck by it.

A similar provision was implemented for the shells in reloadable tube aerial shell devices last year. It is currently included in the test procedures for reloadable shell devices.

NEW REQUIREMENTS FOR ROMAN CANDLES APPROVED

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take adequate precautions as the candle continues to operate.

Finally, the provision establishing a minimum number of 5 shots per candle is intended to limit the amount of pyrotechnic composition contained in each shot from a Roman Candle. In effect, the new provision limits the maximum amount of pyrotechnic composition to 4 grams per shot for five shot candles, with less composition per shot if the candles contains more than 5 shots.

AFSL considered two additional provisions for Roman Candles, including a limit of 50 milligrams per report (the current limit is 130 milligrams); and a prohibition on the use of break charges in Roman Candle components. These provisions were not approved because AFSL concluded that limits on the total pyrotechnic composition per tube and per shot, along with the minimum number of shots per tube, significantly reduces the potential risk of injury associated with Roman Candles.

Prior to the approval of these new provisions, AFSL had suspended testing of Roman Candles containing break charges in components of the candles, allowing shipment of these devices without testing. As a result of the adoption of the new provisions, AFSL will now accept for testing Roman Candles containing break charges in the individual components.

The effective date for the changes to the standards is August 1, 2005. Testing will be performed using the standard sampling plan and sampling procedures.

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approvals are affected. Copies of the test reports that accompanied the submissions of such approval requests should be available for re-examination by DOT.

Following the EX Numbers presentation, APA Executive Director Julie Heckman updated the industry on recent APA activities, including a series of public safety campaigns.

Ms. Heckman stated that fireworks imported into the United States are safer than they have ever been and applauded the manufacturers efforts in improving the safety of their products. She showed statistics indicating that the rate of injuries associates with fireworks declined to the lowest level on record, while the volume of fireworks used in the U.S. has more than doubled in the past ten years.

Ms. Heckman credited factories complying with the AFSL

tested through the AFSL program.

In the afternoon of the seminar, Dr. John Conkling and John Rogers reviewed several modifications to the AFSL standards that will be implemented later in the year. Included were new requirements for Roman Candles, Reloadable Shell designs and labeling, and a new provision prohibiting hard discs in aerial shell inserts. They fielded questions a barrage of questions from factories regarding the changes and how they would affect production of covered products.

AFSL also issued to all seminar participants copies of the newly revised AFSL Standards book, replacing the March 2001 edition of the Standards.

Following the seminar, the delegation toured a fireworks factory in Liu Yang, China to give Dr. Tarr the opportunity to view first-hand the production of fireworks in China. He witnessed the production of several types of fireworks including rockets, mine and shell devices and sev-

eral small specialty items. The group also toured the AFSL Operations Center in Liu Yang and received a briefing on how the program is managed. They also observed actual testing being per-



Julie Heckman tours local retail fireworks stand to Liu Yang, China.



Richard Tarr observes pyrotechnic weight measurements by AFSL Technicians.

Standards as a major reason why the injury rates are declining and encouraged manufacturers to continue to have products

formed by AFSL technicians on-site at one of the testing locations.

AFSL expressed appreciation to the industry for the high level of participation by the factories. The number of attendees was quite high, particularly in view of the fact that the seminar was held during one of the busiest weeks of the fireworks manufacturing season.

Participants observed that while the EX Numbers program modifications will create a significant burden to the industry, information provided during the seminar and the promise of assistance from AFSL and APA should help to ease the burden. AFSL will continue to assist factories, shippers and U.S. importer members in completing and submitting applications through Mr. Hugh McCutchen, AFSL's Consultant on EX Numbers applications.

MULTIPLE LINKED COMPONENTS NOT PERMITTED IN FIREWORKS DEVICES

A modification to the Standards for Comets, Mines and Shells, Fountains, and Combinations eliminates products containing multiple devices that are designed to be fused together or linked together by connectors, allowing all devices to function in sequence upon ignition of the fuse of the first device.

The use of linked components is intended to create a finale effect for consumer fireworks similar to commercial fireworks displays. The Board and Standards Committee concluded that such designs present a potential risk of injury to consumers who could have difficulty in assembling the devices properly. In addition, there is a concern that if the device malfunctions and fuses do not ignite as intended, consumers would be likely to return to the device in attempt to re-ignite or re-connect the malfunctioning fuse.

The following language has been added to the appropriate standards: **“Devices subject to this Standard must contain one ignition fuse. Additional fuses, points of ignition, openings for fuse insertion, or points for ignition transfer are not permitted.”**

The Committee will look at additional designs of devices containing multiple linked or multiple fused components to determine the applicability of the new provision to such devices. However, AFSL has not in the past accepted such devices for testing under the testing program. The amendment was approved to clarify AFSL position on this issue. The effective date for the new language is August 1, 2005.

NEW STANDARDS BOOKS ISSUED TO PARTICIPANTS

AFSL has re-issued the AFSL Standards for Consumer Fireworks to program participants in China and in the U.S. The book, published in both Chinese and English languages, was released at a training seminar in Chang Sha Hunan. It also is being distributed directly to factories in China, Shippers, and importers in the United States.

The publication is the fourth edition of the AFSL Standards, the last of which was issued in March, 2001. Since that time, a significant number of major changes to the Standards have been implemented, making the March 2001 edition obsolete. The new book, identifiable by the date February 2005 on the inside cover page, contains all modifications that have been published through this year. Because the binder cover has not been changed, factories may continue to use the binder if they wish to insert an updated copy of the text of the standards.

While the re-publication was planned for last year, AFSL withheld issuance so that several major changes expected in 2005 could be incorporated. All revisions addressed in other parts of this publication have already been included.

Program participants will receive one copy of the Standards at no cost. Additional copies may be purchased for RMB160, which covers the cost of printing, binding, etc. Any participant that has not already received a current copy of the Standards should contact the local AFSL office in Liu Yang, Beihai, or Guangzhou to obtain a copy.

The Standards also are posted on AFSL's website at www.afsl.org.

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