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APA STANDARD 87-1A FIREWORKS BROCHURE

A Guide to Understanding APA Standard 87-1A



U.S. Department
of Transportation

Pipeline and
Hazardous Materials
Safety Administration

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EXECUTIVE SUMMARY

The Office of Hazardous Materials Safety (OHMS) within the Pipeline and Hazardous Materials Safety Administration (PHMSA) of the United States Department of Transportation (DOT) is responsible for approving the classification of explosives, in accordance with the Hazardous Materials Regulations (HMR; 49 CFR parts 171-180).

This brochure details the process required to apply for a “UN0336, Fireworks, 1.4G” EX Classification Approval (EX Number) through PHMSA or a Firework Certification number (FC Number) through a Fireworks Certification Agency (FCA). Sections 173.64 and 173.65 of the HMR, as well as requirements in the 2018 American Pyrotechnics Association (APA) Standard 87-1A “Standard for the Construction, Classification, Approval, and Transportation of Consumer Fireworks” (2018 APA Standard 87-1A), Incorporated by Reference in 49 CFR § 171.7(f), set forth the regulations and the requirements to apply for an approval or certification.

The regulatory requirements for applying for explosive approvals can be found in:

- § 107.705— Registrations, reports, and applications for approval.
- § 173.56— New explosives—definition and procedures for classification and approval.
- § 173.64—Exceptions for Division 1.3 and 1.4 Fireworks
- § 173.65—Exceptions for Division 1.4G Consumer Fireworks

Each firework application submitted by the manufacturer should comply with the requirements set forth in the HMR and 2018 APA Standard 87-1A. Only consumer fireworks that comply with the 2018 APA Standard 87-1A may be approved by PHMSA or certified by a FCA for transportation.

The contents of this brochure are strictly informational, do not have the force and effect of law, and are not meant to bind the public in any way. This brochure is intended only to provide information to the public regarding existing requirements under the HMR. Compliance with the requirements of the HMR and 2018 APA Standard 87-1A is the responsibility of the reader.

2018 APA STANDARD 87-1A

In accordance with §§ 173.64 and/or 173.65 of the HMR, applications for 1.4G consumer fireworks must meet the requirements of the 2018 APA Standard 87-1A standard.

CONSUMER FIREWORKS – DEFINITIONS AND GENERAL REQUIREMENTS

Part 2 of the 2018 APA Standard 87-1A provides definitions and general requirements for UN0336, Fireworks, 1.4G “Consumer Fireworks.”

DEFINITIONS

Examples of “Consumer Firework” Terms include, but are not limited to, the following:

- **Approval (also known as a Competent Authority (CA) approval)** – Written authorization from PHMSA’s Associate Administrator for Hazardous Materials Safety or other designated Department official, to perform a function that requires prior authorization under the HMR.
- **Certification** – A document issued by an FCA indicating that the “UN0336, Fireworks, 1.4G” application complies with all the requirements of the 2018 APA Standard 87-1A.
- **Consumer Firework** – A finished firework device, including a reloadable shell kit, which is in a form intended for use by the public that complies with the limits and requirements of the 2018 APA Standard 87-1A.
- **EX Number** – An explosive classification approval number preceded by the prefix “EX” assigned by the PHMSA Associate Administrator for Hazardous Materials Safety for a device that has been reviewed and classified under the provisions of §§ 173.56 and/or 173.64.
- **Fireworks Certification Agency (FCA)** – A DOT approved entity authorized under the provision of § 107.402 to review and certify a “UN0336, Fireworks, 1.4G” device as being in compliance with the 2018 APA Standard 87-1A.
- **Firework Certification Number (FC Number)** – A firework certification number preceded by the prefix “FC” assigned by an FCA for a consumer firework device that has been reviewed and certified to meet 1.4G requirements for transportation under the provisions of § 173.65.



GENERAL REQUIREMENTS

Examples of the general requirements for “UN0336, Fireworks, 1.4G” Consumer Fireworks and Novelty devices and the respective definitions found in the 2018 APA Standard 87–1A include, but are not limited to, the following:

- **Applicant – Must be the manufacturer** (49 CFR § 173.64(a)(3)). In addition, foreign manufacturer applicants must have a U.S. Designated Agent who can act on their behalf (See 49 CFR § 105.40). The U.S. Designated Agent may also submit an application to PHMSA on behalf of the manufacturer.
- **Chemical Composition** – Must be the formulation(s) used to produce the pyrotechnic effects listed on the application request and must be formulated from the chemicals in the Permitted and Restricted Chemical Table for Consumer Fireworks and Novelties, found on the PHMSA website, under Fireworks (49 CFR § 173.64(a)(1)).
- **Thermal Stability Test** – Must be conducted in accordance with the requirements outlined in Part 4: Thermal Stability Test Requirements for Fireworks and Novelties of the 2018 APA Standard 87-1A and § 173.64(a)(2).

SPECIFIC REQUIREMENTS FOR NOVELTIES AND CONSUMER FIREWORKS

Part 3 of the 2018 APA Standard 87–1A provides the specific requirements for Novelty devices and Consumer Fireworks.

NOVELTY DEVICES

Novelty device general requirements are found in 2018 APA Standard 87–1A, Section 2.4, and specific requirements in Section 3.2.1. Novelty devices are subject to the following requirements:

1. Novelty devices must meet the requirements of 2018 APA Standard 87–1A Section 3.2.1.
2. EX Approval or FC certification is not required to transport Novelty devices, listed in this standard, into or within the United States.
3. When novelties are transported by air, they must be classified as “UN3178, Flammable Solid, inorganic, n.o.s. (Novelties), 4.1 PGII.”
4. Each outer package containing novelties must be plainly marked “NOVELTIES, NOT REGULATED, EXCEPT WHEN TRANSPORTED BY AIR, IN CONFORMANCE WITH 2018 APA 87–1A”.

List of Novelty Devices	Refer to 2018 APA Standard 87-1A Part 3 Section 3.2
Booby Trap/Pull Apart	3.2.1.1
Novelty Flitter Sparkler	3.2.1.2
Party Popper	3.2.1.3
Novelty Snake	3.2.1.4
Snapper	3.2.1.5
Novelty Wire Sparkler or Novelty Dipped Stick	3.2.1.6
Novelty Smoke Devices	3.2.1.7

CONSUMER FIREWORKS

Consumer Fireworks in the 2018 APA Standard 87-1A requiring approval by PHMSA or certification by an FCA include the following devices and their corresponding sections:

DEVICE	Refer to 2018 APA Standard 87-1A Part 3 Section 3.2
Ground Devices, Individual	
Chaser	3.2.2.1
Crackling Ball	3.2.2.2
Crackling Strip	3.2.2.3
Crackling Tube	3.2.2.4
Firecracker	3.2.2.5
Flasher/Strobe	3.2.2.6
Flitter Sparkler	3.2.2.7
Fountain Cone	3.2.2.8
Fountain Cylindrical	3.2.2.9
Fountain Nitrocellulose	3.2.2.10
Ground Spinner	3.2.2.11
Illuminating Torch	3.2.2.12
Smoke	3.2.2.13
Snake	3.2.2.14
Specialty Device	3.2.2.15
Wheel	3.2.2.16
Wire Sparkler or Dipped Stick	3.2.2.17
Aerial Devices, Individual	
Aerial Spinner	3.2.3.1
Girandola	3.2.3.2
Helicopter	3.2.3.3
Mine Preloaded	3.2.3.4
Mine and Shell Preloaded	3.2.3.5
Missile – Fin Stabilized	3.2.3.6
Missile – Spin Stabilized	3.2.3.7



Rocket (Bottle)	3.2.3.8
Roman Candle	3.2.3.9
Shell Preloaded	3.2.3.10
Cake and Combination Devices	
Cake 200	3.2.4.1
Cake 500	3.2.4.2
Combination 200	3.2.4.3
Combination 500	3.2.4.4
Reloadable Kits	
Aerial Shells, Reloadable Kit	3.2.5.1
Fountains, Reloadable Kit	3.2.5.2
Mines, Reloadable Kit	3.2.5.3
Miscellaneous	
Fuse	3.2.6.1

NOTE: For devices not listed in the 2018 APA Standard 87-1A, refer to § 173.56.

THERMAL STABILITY TEST REQUIREMENTS

Approved devices offered for transportation are thermally stable and in compliance with the requirements set forth in 49 CFR § 173.64(a)(2) - *Exceptions for Division 1.3 and 1.4 Fireworks*. The general requirements for thermal stability testing are found in Part 4 of the 2018 APA Standard 87-1A.

SPECIAL PROVISIONS FOR TRANSPORTATION

2018 APA Standard 87-1A Part 5: Special Provisions for Transportation, addresses the parameters for special provisions for the transportation of "Misfired Fireworks", "Assembled Devices and Set Pieces", and the transportation of "Fireworks with Fuses (highway flares) and Electric Igniters."

FCA CERTIFICATION

In accordance with § 173.65(a)(3), the manufacturer of the 1.4G consumer firework may apply to a DOT-approved FCA for certification. The manufacturer shall be notified in writing by the FCA that the device has been certified in accordance with the 2018 APA Standard 87-1A guidelines and assigned an FC number, if the application meets the requirements for certification.

EX APPROVAL APPLICATION

In accordance with § 173.64(a)(3), the process to apply for an EX approval requires the applicant to apply in writing to the Associate Administrator for Hazardous Materials Safety following the applicable requirements in the 2018 APA Standard 87-1A, and the applicant is then notified in writing by the Associate Administrator for Hazardous Materials Safety that the fireworks have been classed, approved, and assigned an EX number. The manufacturer must sign the application and certify that the device for which the approval is requested conforms to the 2018 APA Standard 87-1A (49 CFR § 173.64(a)(3)). In addition, the manufacturer must ensure that the description and technical information contained in the application are complete and accurate and that no duplicate application has been submitted to an FCA (49 CFR § 173.64(a)(3)).

Both FCA Certifications and EX Approvals applications must be complete and include all relevant background data, such as copies of all applicable drawings, chemical composition sheets, thermal stability test results and any other pertinent information on each device for which a certification or approval is being requested (49 CFR § 173.64(a)(3)).

PHMSA requests that firework EX approval applications be completed in English and the applicant provides consistent information throughout the required application documents. PHMSA considers a completed application submitted for approval to contain at minimum the following in accordance with 49 CFR § 173.64:

- Application Request.
- Device Diagram.
- Chemical Composition Sheet.
- U.S. Designated Agent letter in accordance with §§ 107.705(a)(5) and 105.40 (for foreign based applicants).

If an application is denied, the manufacturer will be notified in writing of the reasons for the denial in accordance with 49 CFR § 107.709. The Associate Administrator for Hazardous Materials Safety may require the fireworks be examined by a PHMSA – approved explosives lab listed in § 173.56.

NOTE: Please refer to the 2018 APA Standard 87-1A for guidance and a sample EX Application.

APPLYING FOR AN EX APPROVAL (EX NUMBER)

PHMSA created an online application system (Portal) found at <https://portal.phmsa.dot.gov> allowing the applicant to submit EX Approval Applications with expedited processing times and immediate confirmation of receipt upon completion of an application.

All applicants requesting an EX Approval are encouraged to use the Portal system. However, PHMSA continues to permit applicants to submit applications using e-mail, parcel/postal mail, or FAX.

****Do not submit duplicate applications (i.e., on-line applications, postal or parcel mail, e-mail and/or FAX), as this will only slow down processing.****

E-mail: fireworks@dot.gov

Mail: U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Associate Administrator for Hazardous Materials Safety
ATTN: Office of Hazardous Materials Safety
Sciences and Engineering Division
Energetic Materials Branch (PHH-24)
1200 New Jersey Avenue, SE
East Building, 2nd Floor
Washington, DC 20590-0001

Fax: (202) 366-5713



COMPLIANCE AND SAFE TRANSPORTATION OF HAZARDOUS MATERIALS

Compliance with the terms of an approval from PHMSA or certification from an FCA is the responsibility of the person authorized to perform the specific function(s). An EX Approval or FC Number may be suspended or terminated if the holder fails to meet required conditions in accordance with 49 CFR § 107.713.

To ensure that approvals are used safely and in accordance with the required terms and conditions, and that companies continue to be fit to conduct authorized operations, enforcement and safety investigators from various Federal agencies, including DOT, routinely conduct compliance and safety inspections.

Persons found to be in violation of the HMR may be subject to civil penalties, criminal penalties, and imprisonment. Maximum penalties depend on several factors, including the nature and circumstances, extent and gravity, and severity of the consequences of the violation. Civil penalties are set out in 49 U.S.C. § 5123, but the actual maximum civil penalties are updated annually due to inflation in accordance with the Federal Civil Penalties Inflation Adjustment Act of 1990 and the Federal Civil Penalties Inflation Adjustment Act Improvements Act of 2015.

Criminal violations of hazardous materials regulations can result in sentences of up to 10 years imprisonment and additional fines as specified in 49 U.S.C. § 5124.

FREQUENTLY ASKED QUESTIONS

Q: What is a Fireworks Certification Agency?

A: A Fireworks Certification Agency is an organization or person approved by PHMSA to certify, classify, and assign an FC number to a fireworks device in accordance with the 2018 APA Standard 87-1A. This entity is authorized in accordance with § 107.402 to review and certify “UN0336, Fireworks, 1.4G” devices.

Q: Where can I find a list of approved Firework Certification Agencies?

A: Information regarding PHMSA approved FCAs can be found on the PHMSA website at the following link:

<https://www.phmsa.dot.gov/hazmat/energetic-materials-approvals/dot-approved-fireworks-certification-agencies>.

Q: Where can I find information on applying for a fireworks EX approval?

A: Information regarding fireworks, the approval process for an EX approval application, a sample application, and additional information can be found at the following link:

<https://www.phmsa.dot.gov/hazmat/energetic-materials-approvals/procedure-obtaining-ex-numbers-under-apa-standard-87-1>.

Q: Can I apply for an approval online?

A: Yes, the applicant can apply via the PHMSA Portal, found at <https://portal.phmsa.dot.gov>.

Q: How will I know if my application has been received?

A: Once a completed application is submitted, the applicant will receive a ten (10) digit tracking number for the specific application.

Q: How can I check the status of my application?

A: Completed applications may be tracked using the provided tracking number within the Approvals Search database at the following link:

<https://www.phmsa.dot.gov/approvals-and-permits/hazmat/approvals-search>.

Q: What additional information must a foreign applicant provide when requesting an approval?

A: Foreign applicants must provide a designation letter for its U.S. Designated Agent for Service with each application in accordance with 49 CFR §§ 105.40 and 107.705(a)(5).

Q: Can the thermal stability test be conducted and dated the same date as the application?

A: The Thermal Stability Test must be completed prior to the manufacturer certifying its application.

Q: Are tracking numbers different from EX Numbers?

A: Yes, the tracking number is an internally assigned number for use within PHMSA. It does not authorize transportation and should not be placed on packaging or shipping papers.

Q: Are EX Numbers/FC Numbers required to be marked on the device, or the packaging if the device is too small?

A: Yes. Please refer to the requirements for a finished consumer firework device in the General Requirements Section 2.4 of the 2018 APA Standard 87-1A.

Q: Are EX Numbers/FC Numbers required to be on the package and/or shipping papers?

A: Yes, § 172.320 requires that EX Numbers/FC Numbers be on the package and/or shipping paper.

Q: How long does an EX Approval application typically take to process?

A: Review of an application may take up to 120 days. ***Do not submit duplicate applications*** Applicants applying through the online PHMSA Portal may see their applications processed more quickly.

Q: How will I know whether my application has been approved?

A: After an evaluation of the application, the applicant will be notified by email of the approval or denial of their application.

Q: Can a new manufacturer use the same EX number to produce an explosive with the same composition as the previously approved explosive?

A: No. EX approvals are issued to the explosives manufacturer in accordance with 49 CFR § 173.56. If that manufacturer changes, the new manufacturer must obtain its own EX approval from PHMSA (49 CFR § 173.56).

Q: Can I submit a series of devices under one EX application request?

A: Yes, please refer to the general requirements section and specific device requirements in the 2018 APA Standard 87–1A for guidance on series applications.

Q: Can EX approval numbers be transferred or sold?

A: No. EX approval numbers may not be sold and are not transferrable. Please see PHMSA's guidance on this topic:

<https://www.federalregister.gov/documents/2019/10/08/2019-21964/hazardous-materials-clarification-of-process-to-reissue-explosives-classification-approvals>

Q: What are some common reasons for denial?

A: Common reasons for denial include, but are not limited to, the following:

- Application does not comply with 2018 APA Standard 87–1A;
- Inconsistent information in the application, diagram, and/or chemical composition sheet;
- Failure to provide a designation letter for its the U.S. Designated Agent for Service (for foreign applicants).

Q: What if I have additional questions?

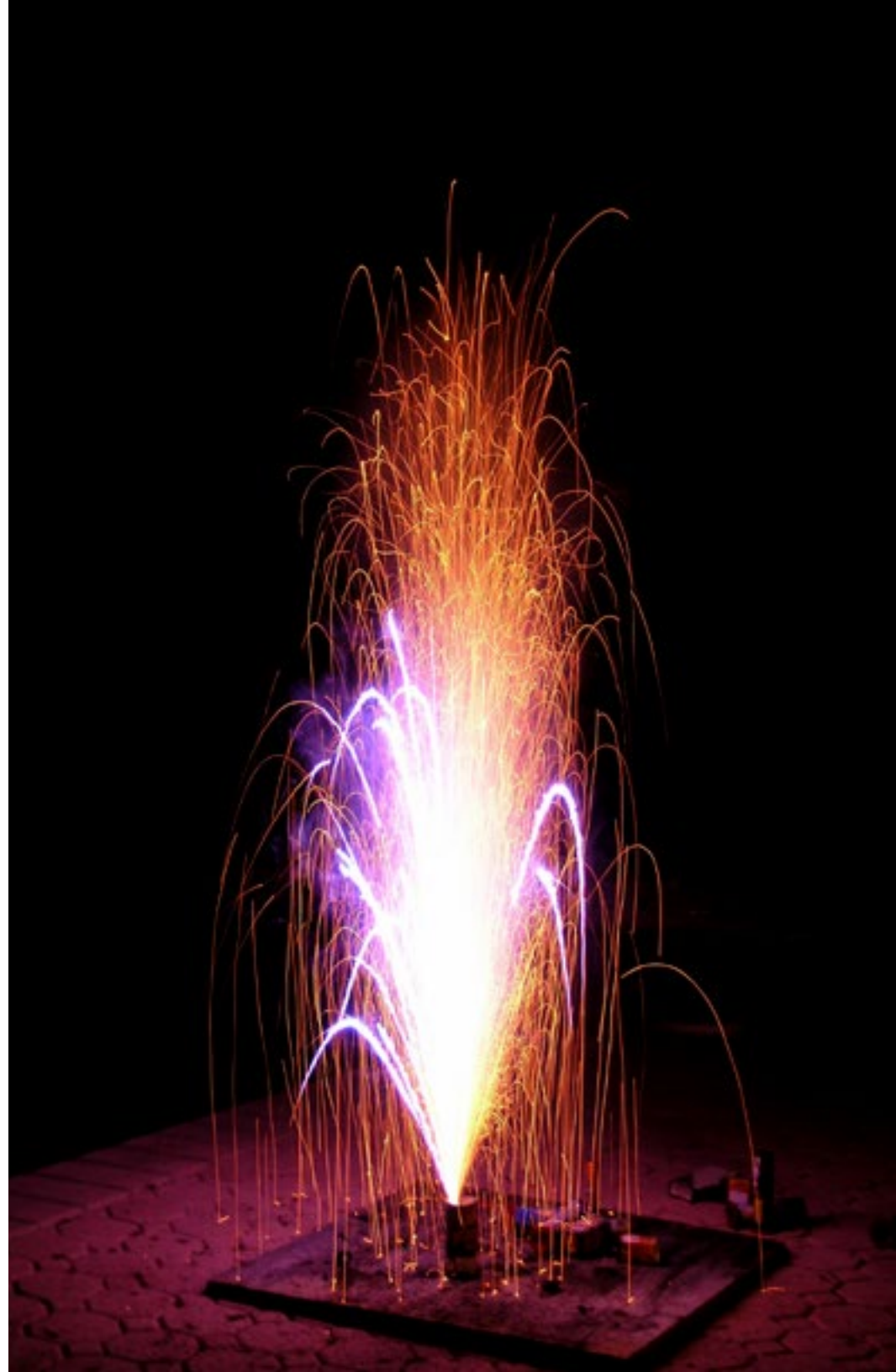
A: Please see below for additional resources:

- The Hazardous Materials Information Center:
 - ◊ Phone Number: 1–800–467–4922
 - ◊ E-mail: infocenter@dot.gov
- PHMSA Energetic Materials Branch at fireworks@dot.gov.
- PHMSA Approvals Website:
 - ◊ <https://www.phmsa.dot.gov/approvals-and-permits/phmsa-approvals-and-permits>

Q: Can the U.S. Designated Agent of service submit an application on behalf of the manufacturer?

A: Yes, the U.S. Designated Agent of service may submit an application and supporting documentation on behalf of a manufacturer. However, the U.S. Designated Agent is neither considered to be the applicant nor the manufacturer. Only an authorized representative from the manufacturer may certify a fireworks application. The EX classification approval will be issued to the manufacturer.

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FOR ADDITIONAL INFORMATION CONTACT:

The Hazardous Materials Info Center
1-800-HMR-4922
(1-800-467-4922)
Email: infocntr@dot.gov
<https://phmsa.dot.gov>

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