



National Fireworks Association

Executive Director

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Consumer Product Safety Commission
4330 East-West Highway
Bethesda, MD 20814

RE: Amendments to Fireworks Regulations, Docket No. CPSC-2006-0034

To the Commission,

The National Fireworks Association (“NFA”) respectfully submits this letter to emphasize its continued concerns with the proposed “Metals Ban,” and to shine light on some of the incorrect, misleading, and unsubstantiated statements contained in the September 26, 2018, staff briefing package (the “Briefing Package”); the October 3, 2018, staff briefing to the Commission (the “Staff Meeting”); and the October 16, 2018, staff evaluation of NFA’s test results demonstrating a burst charge without powdered metals that is more energetic than one with powdered metals (the “Staff Letter”).

NFA is disappointed that after more than 2,000 comments in opposition to the proposed Metals Ban from consumers, businesses, and other stakeholders, the proposed Metals Ban remains unchanged from the initial proposal that was guised as an “interpretive” rule and falsely portrayed by its proponents as universally supported. The proposed Metals Ban still seeks to outlaw *all* powdered metal in burst charges – an unjustifiable threshold that is opposed by *all* stakeholders (including AFSL and APA).¹ The “pow is ow” rationale advanced for this zero-tolerance threshold—*i.e.*, that greater energetics are inherently more dangerous and thus must be reduced—continues to lack support in the record.² It also presents an alarming precedent that would allow the energetics of fireworks to be watered down without justification until they no longer perform. Indeed, commentators have already expressed concern that the proposed Metals Ban will have that effect on some current devices, making them unattractive to consumers and potentially less safe due to inferior characteristics of alternative burst charge formulations.

¹ At the Staff Meeting, staff was unable to articulate a principled reason for setting a zero-tolerance limit on powdered metals, with a discretionary allowance outside of the text of the proposed rule. As unanimously agreed by all industry participants, any permissible allowance of powdered metal must be mandatory, not discretionary, and must be included within the text of any final rule.

² “Pow is ow” is a statement made at an April 2017 meeting with technical staff in explanation of the rationale behind the zero-metals threshold in the proposed Metals Ban. That non-scientific rationale was again advanced at the Staff Meeting. In response to the direct question of “how many deaths would be mitigated or avoided based on the staff’s current recommendation regarding fine mesh metal?”, the “pow is ow” rationale given was “[w]e talked to him [a physiologist commissioned by CPSC] and he said when we asked about explosions, what’s a safe explosion and proximity to a human body, and he said, ‘None.’ It’s really hard to say how that would’ve affected deaths. I would like to think that less energy coming off, it could potentially be less catastrophic. I guess that’s the best way I can answer it.”

NFA is also disappointed that the Briefing Package disregards the technical objections and scientific commentary provided by NFA and others who oppose the proposed Metal Ban. Nowhere is this more noticeable than in the Staff Letter, which criticizes various aspects of testing commissioned from an independent, DOT-approved Explosive Test Lab.³ That testing was commissioned by NFA to demonstrate a discrete, unobjectionable fact: burst charges without powdered metals can be more energetic than those with powdered metals. After knit picking various aspects of the test, and speculating about others, the Staff Letter ultimately *acknowledges* the fact that NFA set out to highlight:⁴

Staff acknowledges that many different pyrotechnic compositions exist that can be used in fireworks, and some of them are more energetic than compositions containing metallic fuels.⁵

This concession was not included in the introduction or summary paragraphs, which focused instead on attacking various aspects of the testing methodology.

No other testing data, including data submitted by AFSL and APA, has received similar scrutiny (or any scrutiny at all). To the contrary, AFSL's and APA's testing data has been taken at face value to prop up the purported factual findings of the Briefing Package where convenient, even when it directly contradicts Staff's and NFA's data. For example, both NFA's⁶ and staff's⁷ testing of aerial fireworks samples within the United States demonstrated that the majority would fail under the proposed ban. Yet the Briefing Package blindly relies on testing performed in China by AFSL contractors⁸ to conclude that the proposed Metals Ban is likely to have little impact on most of the industry.⁹

³ Staff did not request from NFA any additional information that could have addressed these unfounded criticisms. In fact, NFA was unaware of the criticism in the Staff Letter (dated October 16, 2018) until it was made available to NFA for the first time on November 8, 2018.

⁴ NFA's position that the proposed Metals Ban lacks a rational basis because it would allow more energetic burst charges than it bans is not new. NFA has repeatedly made this point in its briefings and presentations. *See, e.g.* NFA July 17, 2017, Comments at 6-7, 12; and NFA March 14, 2018 Comments at 1-5; March 7, 2018, Oral Presentation of Spencer Elg, Counsel for NFA.

⁵ Staff Letter at 3.

⁶ July 17, 2017, Supplement to Comments of NFA, *An initial investigation of the use of XRF spectrometry to determine powdered aluminum, titanium and magnesium in consumer fireworks burst charges*, at 2 ("Ninety five percent (95%) of the burst charges had aluminum measurements exceeding 0.1% w/w Al, 55% exceeded 1.0% w/w Al, and 42% exceeded 5.0% w/w Al.")

⁷ December 14, 2016, Notice of Proposed Rulemaking at 9016 ("While using the APA Standard 87-1 method, staff found that 84 percent of the samples were "intended to produce audible effects" [*i.e.*, 84 percent of samples had powdered metals in the burst charges] . . .").

⁸ Briefing Package at 18 (" . . . APA and AFSL provided test results . . . [that] indicate that approximately 92 percent of mine shell devices (MSDV) and 77 percent of reloadable-tube aerial shell (RTAS) devices on the market would comply with a 1 percent enforcement discretion" [*i.e.*, 92 percent of samples did not have more than 1% powdered metals in the burst charges]).

⁹ Briefing Package at 47 ("Staff agrees with BV's [the contractor who performed the tests for AFSL and APA] interpretation of the test results. Results show that the majority of devices currently on the market would not violate the recommended final rule.")

As another example of the deference given to AFSL and APA, the Briefing Package points to AFSL's and APA's recoil testing to support its approximation of the increased energetics that can result from adding powdered metals to black powder.¹⁰ In stark contrast to the scrutiny applied to NFA's test results showing that burst charges without powdered metals can be more powerful than those with powdered metals—a fact that staff does not even dispute—the Briefing Package adopts AFSL's and APA's recoil testing results without a shred of scrutiny.

A final example lies with the Briefing Package's conclusion that the proposed Metals Ban is unlikely to pose significant costs to the industry. In drawing this conclusion, AFSL's price estimate of \$15 per XRF scan is adopted as the cost of testing.¹¹ NFA's estimated cost of \$100 per item, which was separately obtained from two independent laboratories in China that perform testing of consumer fireworks per CPSC specifications, was relegated to footnotes and ignored in the cost-benefit analysis.¹² Similarly, the numerous comments about the negative impact on consumer demand that would arise from the proposed Metals Ban have not been taken into consideration, even though the Briefing Package acknowledges that there may be cost to consumers in terms of a loss of enjoyment or utility.¹³

After erroneously relying on AFSL's and APA's prior representations that that the fireworks industry unanimously supported the proposed Metals Ban, it is concerning that the Briefing Package continues to defer to AFSL's and APA's views and opinions while casting aside those of NFA and the thousands of commentators who have voiced concern. While the Briefing Package, Staff Briefing, and Letter are riddled with faulty assumptions and factual inaccuracies, NFA focuses the rest of this letter on a few of the most glaring issues.

1. Limits already exist on the amount of pyrotechnic composition in aerial fireworks.

The Briefing Package alleges that “no CPSC regulation limits the quantity of explosive composition” in aerial devices.¹⁴ Similarly, at the Staff Meeting, it was alleged that “For devices that are not intended to produce an audible effect and are not firecrackers, there are no such limits and a device can contain any amount of pyrotechnic composition.” These assertions are demonstrably false. Since 1991, reloadable tube aerial shells have been limited to an outer diameter of 1.75 inches.¹⁵ Multi-tube aerial shells are also subject to specifications on maximum diameter size.¹⁶ These diameter specifications impose limitations on the amount of pyrotechnic composition in aerial devices, as was their purpose when enacted. In fact, the reason that there is already a high level of compliance with the proposed composition weight limits¹⁷

¹⁰ Briefing Package at 47, 62-63

¹¹ Briefing package at 100.

¹² Briefing package at 99 n.95; 140 n.147; and 141 n.151. The footnote calculations using the cost of testing provided by NFA are also inaccurate. As explained in NFA's March 14, 2018, Supplemental Comments, the XRF testing costs represent an approximate increase of 50% - 100% over the current cost of testing for *all* current CPSC regulations.

¹³ Briefing package at 97.

¹⁴ Briefing Package at 14.

¹⁵ 16 CFR § 1500.17(11)(i).

¹⁶ 16 CFR § 1500.17(12).

¹⁷ It has been observed that 70-85% of tested devices already comply with proposed limits on chemical composition and pyrotechnic weight. 82 Fed. Red. 9019.

is because of the existing diameter specifications. In short, CPSC regulations currently do impose limits on the amount of pyrotechnic composition in aerial devices, and there is no data to justify imposing even more stringent restrictions.

2. The hybrid alternatives to powdered metals are not as safe and will be used.

As noted above, the Staff Letter ultimately acknowledges that whistle mixes (non-metallic burst charges that would be permissible under the proposed Metals Ban) can be more energetic than the powdered metal burst charges that would be banned. The Staff Letter attempts to sweep aside this fact by arguing, without any evidence, that whistle mixes are unlikely to be used in aerial fireworks: “whistle compositions are known to be hygroscopic and more sensitive to heat and friction, thus making them less stable and unlikely to be seen in future production.”¹⁸

The assertion that manufacturers are unlikely to use whistle mixes if powdered metals are banned is absurd.¹⁹ Whistle mixes get their name from ground fireworks that use whistle mix to make a whistling sound. These whistle mixes have been used for decades in ground devices, and they will certainly be used in aerial devices if the proposed Metals Ban takes effect.²⁰ Even the Briefing Package acknowledges that “[n]on-metallic formulations, known as ‘whistle mixes,’ may prove to be an acceptable substitute [to powdered metals].”²¹

The Staff Letter’s observation that they have not seen whistle mixes in aerial devices is not probative of any future potential use. Staff has not conducted any statistically valid sampling of products to draw a conclusion. Instead, it bases this assertion on the tiny number of targeted items (many of the exact same item) that staff self-selects for testing. More importantly, as staff has recognized, whistle mixes are more prone to ignition by friction and shock than those with powdered metals. They are also more expensive. Given that powdered metal burst charges are permissible under current CPSC regulations, and are safer and less expensive than whistle mixes, it should come as no surprise that manufacturers historically have generally avoided using whistle mixes in burst charges. The proposed Metals Ban, of course, would change that and thus threatens to make future aerial fireworks less safe than current devices.

3. Black Powder alone cannot be used in consumer aerial fireworks.

Multiple aspects of the Briefing Packing, including its cost-benefit analysis, are premised on the assumption that black powder alone can be used in the burst charges of consumer aerial fireworks. As stated in the Briefing Package: “Staff expects industry to comply with the recommended regulation by

¹⁸ Staff Letter at 2.

¹⁹ In the unfiltered words of the former AFSL Chairman Emeritus and Product Safety Liaison to the APA, CPSC, DOT, and Chinese Manufacturers, as stated at the March 7, 2018 public hearing: “If you take metals out of explosive charges and the importers want more energetic explosive charges, Chinese manufacturers will figure out a way.”

²⁰ Commentators have noted that production in China of aerial devices using whistle mix burst charges has already begun. The use of whistle mixes is also a possible explanation for AFSL’s testing in China that purportedly showed a low percentage of aerial devices with powdered metals in their burst charges.

²¹ Briefing Package at 140 n. 139.

eliminating fine mesh metallic powder from the formulations used in fireworks break charges, which in most cases would result in burst charges that consist solely of black powder.”²²

The expectation that black powder alone can be used in the burst charges of aerial fireworks is unfounded. As explained by numerous commentators, black powder alone lacks the heat or pressure that is necessary for the safe and proper functioning of many aerial devices. Black powder does not have the burn rate necessary to ignite many visual effects and to adequately break apart shells and disperse pyrotechnic effect stars. As explained by one commentator: “Prohibiting the use of powdered metals and hybrid powders in burst charges would restrict creativity, limit design of products, and make many of today’s popular aerial devices go away.”²³ As explained by multiple commentators, limiting burst charges to black powder alone would cause consumer demand to plummet, resulting in a devastating impact on industry. The Briefing Package’s assumption that black powder is an adequate substitute for powdered metals in burst charges highlights a lack of technical proficiency in aerial fireworks design and manufacturing, and a rejection of consumer preferences for the visual effects of modern consumer aerial fireworks.

4. There continues to be no safety justification for the proposed rule.

Above all, the gravest concern to NFA about the proposed Metals Ban is that it lacks a safety justification. There continues to be a complete dearth of data showing a correlation, let alone causation, between injuries and the powdered metals content of the burst charges of the devices involved. To the contrary, nearly all injuries related to aerial devices do not even involve the burst charge, but are associated with the impact from the lift charge. Further, there are no hidden or unknown risks with aerial fireworks.²⁴ The relatively few serious incidents associated with consumer aerial fireworks are related to obvious misuse.²⁵ Serious injuries are virtually eliminated by following the clear instructions that are printed on packaging. The focus of CPSC regulation should continue to be on potentially unknown hazards and not on obvious potential risks that consumers know and understand.

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We appreciate your consideration of NFA’s continued concern about the propose Metals Ban, and urge you to keep in mind the thousands of commenters who have expressed similar concerns.

Sincerely,



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²² Briefing Package at 97.

²³ Comments of Precocious Pyrotechnics, Inc. (Mar. 13, 2018).

²⁴ For a more detailed discussion, including excerpts from consumer comments, see NFA’s March 14, 2018 Supplemental Comments at 3-4.

²⁵ A thorough analysis of CPSC’s safety data can be found in NFA’s July 17, 2017, Comments at 8-12.