

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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PRIME TIME TOYS LLC, PRIME TIME TOYS LTD. and EASEBON  
SERVICES LTD.  
Petitioner,

v.

SPIN MASTER, INC.,  
Patent Owner.

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Case IPR2023-01348  
Patent 8,371,282

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**PATENT OWNER'S SUR-REPLY**

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| EX2117        | ASTM F1979–10 “Standard Specification for Paintballs Used in the Sport of Paintball” (Approved: July 2010; Published: Aug. 2010) |
| EX2118        | Nonpowder Firearm Injuries to Children Treated in Emergency Departments, American Academy of Pediatrics (2019)                   |
| EX2119        | ASTM F963–07 “Standard Consumer Safety Specification for Toy Safety” (Approved: March 2007; Published: May 2007)                 |
| EX2120        | Materials Science and Engineering, An Introduction, John Wiley & Sons, Inc. (8 <sup>th</sup> Ed.)                                |
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## **I. INTRODUCTION**

Petitioner has not shown that using a science toy like Spitballs as ammunition for a high-powered airsoft gun like the one Peev teaches was a combination that a POSITA would have been motivated to pursue. Nothing like this combination had ever been done before, and for good reason. It offered no predictable safety benefit, was contrary to the fundamental purpose of airsoft, and would not have been likely to work. Petitioner cannot remedy these defects by introducing a brand new kind of expert and shifting from its reductive softer-means-safer logic in the Petition to a convoluted theory about Spitballs' supposed unique energy dissipation capabilities. This impermissibly new and non-responsive theory is just as flawed on the merits.

Petitioner played its hand differently on objective indicia. There, Petitioner chose not to submit any rebuttal evidence or expert testimony after Patent Owner met its initial burden of production. As a result, the evidence Patent Owner adduced on the commercial success and industry praise of the patent-practicing Xploderz products is largely uncontested. Petitioner only disputes Patent Owner's showing of nexus and does so by erroneously framing the facts and the law in a manner the Board should not credit.

Because Petitioner failed to carry the burden of persuasion on obviousness, the Challenged Claims should be upheld, including claims 8, 19, and 20, which find added support from the objective indicia of nonobviousness.

## II. ARGUMENT

### A. Petitioner Has Failed To Establish a Valid Motivation to Combine Peev and Spitballs

Petitioner initially put forward a “softer means safer” logic as its motivation to combine theory. Citing direct testimony from its expert in industrial and toy design, Mr. Delman, and cross-examination testimony from Patent Owner’s expert in mechanical engineering and toy design, Dr. Kudrowitz, Petitioner argued in the Petition that a POSITA would have sought to make an airsoft gun like Peev’s “safer” by employing “softer” Spitballs as ammunition:

As of the Challenged Claims’ priority date, a POSITA (1) knew about the injury problem caused by airsoft guns (such as Peev), (2) knew one solution was to make the ammunition softer, (3) knew that there was prior art soft SAP ammunition available (Spit Balls) and few other alternatives, and (4) had the technical skill to combine this soft ammunition with Peev.

Pet. 38–39. But after Patent Owner’s Response exposed the many flaws in this theory, Petitioner sought to change course. POR, 11–32. Shedding Mr. Delman, Petitioner’s Reply introduces testimony from someone who does not claim to be and is not a POSITA—Dr. Amy Courtney—an alleged specialist in medical engineering and ballistics. Reply, 1. This shift is both too little and too late.

**1. Petitioner’s Reply Does Not Resuscitate the Original  
“Safer” Airsoft Motivation Theory**

**i. The Reply Does Not Show That a POSITA Would  
Think Softer Spitballs Are Safer Airsoft Ammunition**

It is common ground among the parties’ experts that Petitioner’s softer-means-safer logic holds true only when all other variables are held constant. *See* EX2015 ¶¶61; EX1037 ¶¶39. But a comparison between Spitballs and airsoft rounds is not so simple. Undercutting this reductive softer-means-safer logic, Petitioner’s Dr. Courtney admits that these projectiles “vary in more ways than one.” EX1037, ¶¶39; *see also* EX2015 ¶¶61. Beyond softness, one of the other ways Spitballs differ from airsoft rounds is weight. Petitioner’s Dr. Reitman testified that Spitballs absorb a mass of water totaling “1.844 g,” (EX1017 ¶¶70), while airsoft rounds weigh as little as 0.12 g, (EX2015 ¶¶59). Accordingly, Spitballs are *more than 14 times* heavier and have *more than 14 times* as much kinetic energy (or “muzzle energy”). POR 16, EX2015 ¶¶59. This fact is undisputed, but the parties diverge on its import.

**a. Dr. Kudrowitz’s Kinetic Energy Analysis Is the  
Approach a POSITA Would Have Used**

The evidence supports Patent Owner and Dr. Kudrowitz’s position that a POSITA would *not* have viewed a heavier kind of projectile like Spitballs carrying so much more kinetic energy as a “safer” form of ammunition. EX2015 ¶¶59. This is so because, as both parties’ experts explain, the transfer of kinetic energy on impact from a projectile to human tissue is what can cause injuries. *See* EX2015

¶54; EX1037 ¶35. Kinetic energy was therefore “a conventional approach for evaluating safety of projectile launching devices of all sorts.” EX2015 ¶56. Third-party documents from each side of the docket—e.g., industry standards (EX2029 pp.2–3; EX2119 p.17), government reports (EX1019 p.9), airsoft handbooks (EX2016 p.9), and research papers (EX1033 p.2)—support this fact.

**b. Dr. Courtney’s New “Normalized” Kinetic Energy Theory Does Not Help Petitioner**

Petitioner’s Dr. Courtney says there is more to it. For example, Dr. Courtney claims that “[t]he contact area of a small projectile is also important to injury risk” and can be “characterized by the kinetic energy transferred per unit area of contact,” (EX1037 ¶41). *See also* Reply 11–12 (“kinetic energy per unit contact area”). The scientific literature Dr. Courtney cites refers to this quantity as “normalized” kinetic energy. EX1041 p.2 (applying normalized KE to “Foam” projectiles”); EX1047 pp.3–4 (applying normalized KE to “Airsoft pellets”). But Dr. Courtney’s new normalized kinetic energy theory does Petitioner no good for at least three reasons.

First, this supposedly “important” factor comes too late, as it was not addressed in the Petition or by Petitioner’s original expert, Mr. Delman. Second, Dr. Courtney is not a POSITA, does not claim to be a POSITA, and therefore is not qualified to opine as to the approach a POSITA would take to quantify injury risk. *Infra* §I.A.1.iv. Third, Dr. Courtney failed to address that heavier Spitballs still carry

more than twice as much normalized kinetic energy compared to airsoft, despite Spitballs’ larger radius and wider contact area.<sup>1</sup> So even assessing “the kinetic energy per contact area,” as Petitioner and Dr. Courtney now implore, the record evidence still does not show that Spitballs constitute safer ammunition. Reply 11–12.

| Quantity \ Projectile Type                                                                                                                             | Spitballs | Airsoft   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|
| Mass (g)                                                                                                                                               | 1.84      | 0.12      |
| Velocity (m/s)                                                                                                                                         | 87.36     | 87.36     |
| Radius (mm)                                                                                                                                            | 7.62      | 3.00      |
| Normalized Kinetic Energy, (J/m <sup>2</sup> )<br>$\frac{\text{Kinetic Energy, } \frac{1}{2} * mv^2 \text{ (J)}}{\text{Contact Area, } \pi r^2 (m^2)}$ | 40,851.97 | 17,188.73 |

**c. Dr. Courtney’s New Deformability and Frangibility Theories Are Untimely and Underdeveloped**

Petitioner and Dr. Courtney claim that Patent Owner’s Dr. Kudrowitz failed to consider the fact that Spitballs are softer and will bounce or explode into mushy parts on impact. Reply 9–10; EX1037 ¶42. But that is untrue. Dr. Kudrowitz expressly acknowledged this teaching about Spitballs, (EX2015 ¶41 (citing EX1002 p.15)), and he explained in detail why, nevertheless, a POSITA would not equate Spitballs’ softness with safety, (*id.* ¶¶44–55). Again, it is because of Spitballs’ high

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<sup>1</sup> In the table above, Spitballs’ mass/radius are from EX1017 ¶70; the velocity value is from EX1047 p.7 (Table 3); and the normalized KE equation is from EX1047 p.3 (explaining that the “area” is “the cross-sectional area of a sphere”).

mass and kinetic energy compared to airsoft. Like Spitballs, paintballs and potato gun rounds are softer than airsoft and they also explode on impact; yet Petitioner and Dr. Courtney do not deny that paintballs/potatoes are more dangerous. EX2015 ¶¶43–53. In fact, their new evidence confirms this point. *See* EX1047 pp.5–9 (reporting far more ocular “Globe Rupture[s]” for paintballs than airsoft).

To the extent Dr. Courtney blames Dr. Kudrowitz for not considering the specific way Spitballs’ softness purportedly dissipates and diverts energy from the skin “through deformation, elastic (e.g., bounce) or permanent, and/or fracture (e.g., explode into mushy parts),” this charge is misplaced. EX1037 ¶43. The blame belongs to Petitioner, as there is no meaningful discussion on the effect of Spitballs’ deformation or fragmentation properties in the Petition or Mr. Delman’s declaration. Patent Owner and Dr. Kudrowitz cannot be expected to address convoluted technical arguments that—over a multi-year dispute on this very issue across the ITC and the PTAB—Petitioner is just now raising for the very first time. *See* Reply 11–12.

The Board should disregard these new deformation and fragmentation theories, not only because they are untimely, but also because Dr. Courtney did not explain how a mere POSITA could have reliably assessed them when comparing Spitballs to airsoft rounds from a safety perspective. The truth is that it would be difficult to do. When asked during deposition how “someone back in 2010” would “determine how much kinetic energy is absorbed through deformation and/or

fragmentation of [a] projectile,” the only clear answer Dr. Courtney could give is “through experiment.” EX2121, 47:1–48:10. And yet assessing the effects of deformation and fragmentation on injury risk was beyond even some experimental studies. For example, the energy-dissipating effect of projectile deformation is not addressed in the experimental injury studies Dr. Courtney cited involving both softer foam projectiles and harder metal rods and BBs. *See* EX1041; EX1047.

Regardless, even if Spitballs’ softness dissipates energy through deformation, fragmentation, or some other mechanism, neither Petitioner nor Dr. Courtney asserts that such diversions would overcome the fact that Spitballs carry *more than 14 times* as much kinetic energy. Tellingly, they make no attempt at all to assess the extent or degree of Spitballs’ energy dissipation, a fact Dr. Courtney conceded repeatedly during deposition. EX2121, 48:11–49:7 (“I have not calculated that”). This omission matters because properties like softness, deformation, and fragmentation are not dispositive on safety. Again, there is no debate that potato gun rounds and paintballs are more of an injury risk than airsoft even though they are softer and explode on impact. What’s more, as Dr. Courtney conceded during deposition, the “back splatter” of energized fragments from exploding projectiles creates an additional safety “concern.” EX2121, 101:14–104:4.

Dr. Courtney’s cherry-picked 1979 study on quantifying toy safety from the National Bureau of Standards further discredits the logical leap that a projectile with

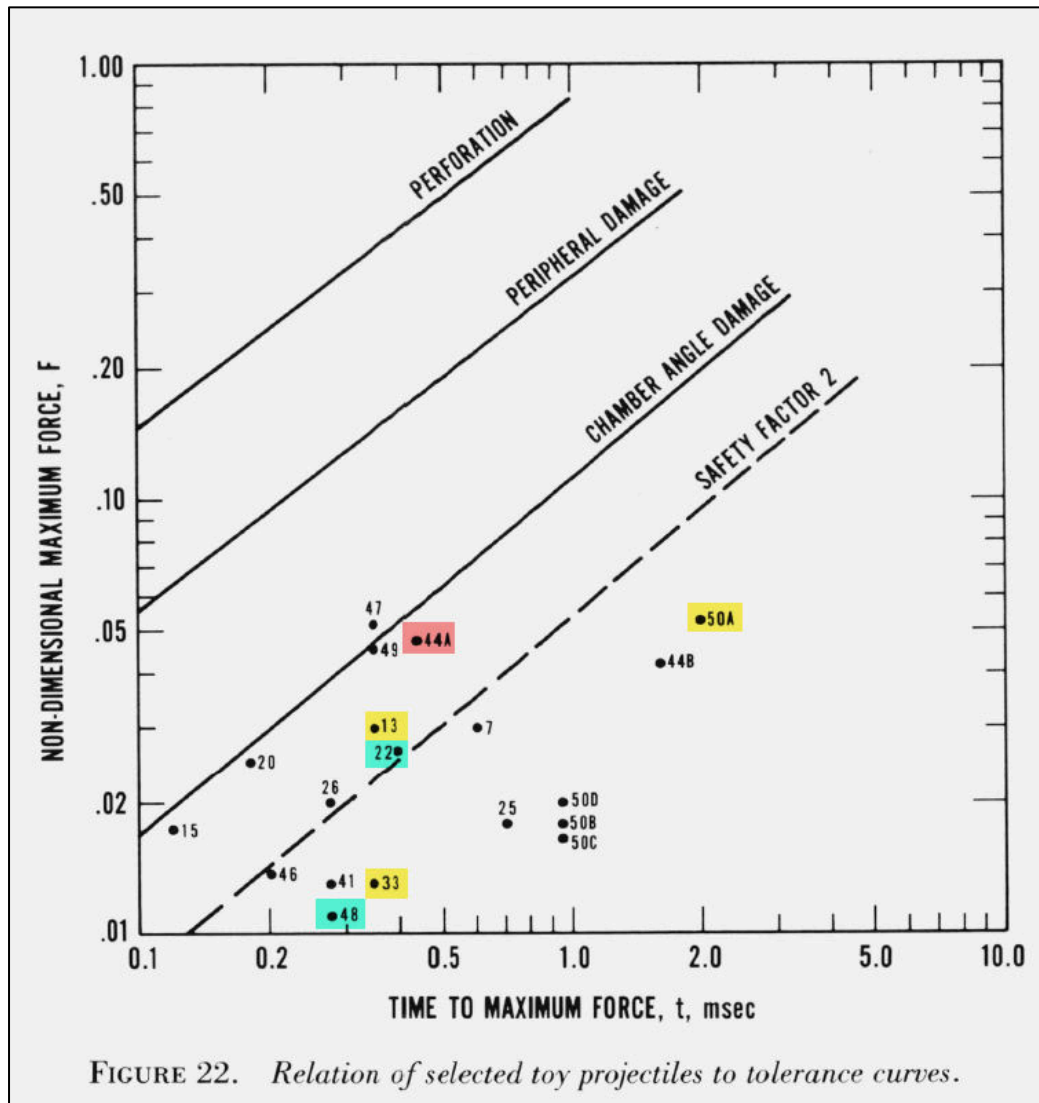
softness and deformation properties is automatically safer. *See* EX1037 ¶44 (“completely flexible missile”). As highlighted below, this study reports that the “[f]lexible” projectile (red) touted in Dr. Courtney’s declaration scored higher than other “nearly rigid” projectiles (yellow) and “plastic bullet[s]” (blue) in the calculated “parameter *B*” that correlates to **higher injury risk**. EX1044 pp.9–10; EX2121, 76:8–77:3 (identifying Toy ID 44A as the “completely flexible missile”), 72:19–73:3 (similar), 73:4–74:12 (identifying “nearly rigid” projectiles), 78:19–79:20 (explaining that “a higher value for *B* would suggest a higher risk of injury”).

TABLE 2. *Projectile Toys Tested in Accordance with Proposed Method.*

| Toy ID | Description                                            | $F_m$ (N) | $t_m$ (msec) | $B$ (N/msec) |
|--------|--------------------------------------------------------|-----------|--------------|--------------|
| 13     | Ping pong ball shooter                                 | 107       | 0.25         | 428          |
| 22     | Machine gun, plastic bullet                            | 93        | .27          | 344          |
| 48     | Machine gun, plastic bullet                            | 19        | .20          | 95           |
| 20     | Gun, bullet has suction cup attached                   | 91        | .15          | 607          |
| 33     | Rifle, small rubbery bullet                            | 24        | .25          | 96           |
| 26     | Cork gun                                               | 64        | .20          | 320          |
| 15     | Cork gun                                               | 53        | .10          | 530          |
| 46     | Plastic disc shooter                                   | 32        | .15          | 213          |
| 44     | Aircraft carrier                                       |           |              |              |
|        | A Flexible planes with rubber band launching mechanism | 192       | .30          | 640          |
|        | B                                                      | 133       | 1.00         | 133          |
| 50     | Warrior, shoots various objects:                       |           |              |              |
|        | A fist                                                 | 267       | 1.35         | 198          |
|        | B ax                                                   | 48        | 0.6          | 80           |
|        | C bullet                                               | 43        | .6           | 72           |
|        | D airplane                                             | 59        | .6           | 98           |

EX1044 p.9 (Table 2 excerpt). Although it “tends to bend on impact” and is “completely flexible,” Dr. Courtney admitted that this softer, deformable projectile

poses *more* of an injury risk. EX1044 pp.9–10; EX2121, 90:19–92:1 (conceding that Toy ID44A—the flexible projectile—“is more likely to cause clinically detectable contusion damage”), 106:19–108:15 (similar), 81:12–83:7.



EX1044 p.10 (Figure 22 indicating that flexible projectile 44A in red is nearer the “Chamber Angle Damage” curve than “nearly rigid” projectiles (13, 33, 50A in yellow) and “plastic bullet[s]” (22, 48 in blue)).

Yet another flaw in Petitioner and Dr. Courtney's injury analysis is that they fail to look at the other side of the ledger. For example, while they extol energy-diversion benefits of Spitballs' ability to "bounce" on impact, (EX1037 ¶43), they ignore that such bouncing is not unique to Spitballs. Airsoft rounds also "bounce off the target," even a soft target made of "gel foam":

**What kinds of airsoft targets are available?**

The most common type of airsoft target is the "sticky target" made of gel foam. It works fairly well for lower powered guns (those with a muzzle velocity of around 300 feet per second or less). The idea is that the BB hits the gel foam and sticks there (temporarily at least) and then slowly slides down and drops into a tray beneath the target. The BBs can then be collected easily and possibly re-used. The downside of gel foam targets is that the BB can bounce off the target or hit and drop down into the tray before you can tell where it hit.

EX2016 (Airsoft Question and Answer Book) p.17.

Lastly, even if one were to assume without proof, as Petitioner and Dr. Courtney do, that Spitballs ultimately deliver less energy to the skin, the record does not show that Spitballs would prevent or meaningfully reduce injuries. Dr. Courtney, an expert in medical engineering and ballistics, failed to name even a single type of injury that would be avoided or significantly lessened by using Spitballs as airsoft gun ammunition.

**d. Petitioner Cannot Reasonably Critique Dr. Kudrowitz for Not Analyzing a Hypothetical Spitball That Petitioner Itself Did Not Analyze**

Petitioner's final complaint that Patent Owner and Dr. Kudrowitz did not assess the kinetic energy carried by a hypothetical smaller, 6 mm Spitball is also misplaced. Reply, 13–14. Dr. Kudrowitz did not analyze some random “15.24 mm diameter SAP projectile,” as Petitioner seems to suggest. *Id.* He focused on the only projectile for which Petitioner's Dr. Reitman provided mass and diameter calculations; the projectile disclosed in the Spitballs reference. EX2015 ¶59 (citing EX1017 ¶70 (quoting EX1002 p.21))). Here, as before, Petitioner seeks to turn the burden framework on its head. If Petitioner's obviousness case was principally based on the characteristics of a projectile other than the one disclosed in the Spitballs reference, then it was Petitioner, not Patent Owner, who should have analyzed the injury capacity of such a projectile. Petitioner failed to do so.

**ii. The Reply Does Not Show That Spitballs Were a Known, Suitable Solution to Airsoft Safety**

Petitioner cannot rewrite history. There is not a single piece of evidence suggesting that Spitballs were a known prior art solution to airsoft safety. Petitioner betrays the weakness of its position by pointing to the “VAT19 video,” which indisputably is *not* prior art and fails to show an airsoft gun. Reply 12 (citing EX1023). The evidence tells a different story about the prior art than Petitioner does.

For example, Petitioner and Dr. Courtney fail to rebut Dr. Kudrowitz's testimony that a POSITA looking to reduce the likelihood of an airsoft injury "would have reduced the muzzle velocity of Peev's gun." EX2015 ¶85. More, Dr. Courtney agrees with Dr. Kudrowitz that utilizing protective equipment—e.g., goggles/masks and layers of gear/clothing—was a common technique for reducing injury risk in projectile sports. EX2015 ¶84; EX1037 ¶53 (discussing the "typical[]" use of "eye/face protection" and "loose clothing with thick fabric and/or padding to help absorb the impact energy"), ¶48 (discussing the use of "padding in protective sports equipment, soft body armor"). It is therefore no surprise that Dr. Courtney's cited injury studies recommend not radically changing the chemical composition of airsoft ammunition to super absorbent polymer but instead simply wearing protection. *See* EX1033 p.4 ("Wearing protective facial mask or even protective clothing should be promoted among war game players[.]"); EX1034 p.3 (noting "literature recommending...toughened face masks"); EX1048 ("Safety goggles should be included with the guns and wearing them should be mandatory[.]"). The applicable ASTM standards recommend the same. *E.g.*, EX2028 p.1 ("Eye protection designed for airsoft must be worn by the user and any person within range.").

Given that these bona fide solutions were effective and widely used, it is Petitioner's burden to prove that a POSITA would have bucked the trend. But there is no evidentiary support for that conclusion, especially when inventing a new kind

of Spitballs-like ammunition for airsoft would have proved difficult and introduced the host of problems identified in Patent Owner’s Response. *See* POR 19–21 (liquid-filled ammunition excluded from ASTM standards), 21–24 (premature breakage), 28–32 (reduced impact would undermine military games and training).

**iii. The Reply Does Not Demonstrate a Finite Number of Alternatives to Conventional Airsoft Ammunition**

Petitioner chose not to address the “[f]irst” and “[s]econd” flaws Patent Owner identified regarding the conclusory assertion in the Petition and Mr. Delman’s declaration that “[t]here was a finite number of ammunition options...including rubber, cork, foam, and soft plastics, such as SAPs.” POR 24–26 (quoting Pet. 37). Even if, as Petitioner contends, (Reply 17), Spitballs were a known type of airsoft ammunition (which is untrue), that does not mean a POSITA would have been presented with the limited field of options required by law. Petitioner’s only other argument cuts both ways. True, just because countless rubbers, foams, and soft plastics were known to exist does not mean “such polymers were *suitable for use as ammunition*”; the same logic applies to Spitballs. Reply 17 (original emphasis).

**iv. The Reply Relies on Untimely Testimony From an Unqualified Expert That Is Entitled No Weight**

Dr. Courtney’s testimony should not be considered and, if considered, accorded little or no weight. First, as discussed, Dr. Courtney’s “new theor[ies]” that Spitballs are safer due to their purportedly special deformation and

fragmentation properties comes too late. *Corephotonics, Ltd. v. Apple Inc.*, 84 F.4th 990, 1008 (Fed. Cir. 2023); EX1037 ¶¶15–16, ¶¶33–66, ¶¶75–76. If such theories are as “important” as Dr. Courtney contends, (EX1037 ¶41), they should have been in the Petition so Patent Owner could have responded with countervailing evidence.

The motivation-to-combine case Petitioner made in the Petition was simply that a POSITA knew softer SAP ammunition like Spitballs would solve an airsoft injury problem. Pet. 38. Although the Petition briefly mentions that Spitballs explode on impact, it does not even attempt to explain how this characteristic might make Spitballs a safer ammunition choice. Pet. 36–37. The corresponding seven paragraphs of Mr. Delman’s declaration are deficient in this same way. EX1016 ¶¶76–82. Now that its initial softer-means-safer logic has been debunked and the record is closed to Patent Owner, Petitioner submits nearly *forty paragraphs* of new testimony on deformation and fragmentation from Dr. Courtney, an entirely different kind of expert than Mr. Delman. See EX1037 ¶¶15–16, ¶¶33–66, ¶¶75–76.

Second, the Board should disregard Dr. Courtney’s testimony because Petitioner fails to establish—or even allege—that Dr. Courtney meets the minimum qualifications of a POSITA under any of the three proposed skill level definitions identified in the Petition. See *generally* Reply; Pet. 19–20. Likewise, despite acknowledging and claiming to have “considered” these definitions, Dr. Courtney does not assert that she *satisfies* their requirements. EX1037 ¶¶24–26.

More than a harmless oversight, examining Dr. Courtney’s credentials casts doubt on whether she “possess[es] ordinary skill in the art,” a must for anyone who seeks “to offer expert testimony on issues from the vantage point” of a POSITA. *Kyocera Senco Indus. Tools Inc. v. Int’l Trade Comm’n*, 22 F.4th 1369, 1377 (Fed. Cir. 2022). For example, Dr. Courtney’s declaration and resume give no hint that she possesses the required degree(s) or “at least one year of relevant experience *designing* projectile launching systems,” as required by Patent Owner’s proposed skill level definition; the one that “best fits the legal requirements.” Inst.\_Dec. (Paper 10) 8. Petitioner invites error by submitting Dr. Courtney’s opinions on what a POSITA would have known and been motivated to do, without establishing that Dr. Courtney is qualified to give such opinions. *Sierra Wireless, ULC v. Sisvel S.p.A.*, 130 F.4th 1019, 1024–25 (Fed. Cir. 2025) (vacating the Board’s decision for crediting expert testimony without finding the declarant qualified as a POSITA).

Third, the Board should give Dr. Courtney’s testimony no weight because it is based on insufficient facts, data, and methodology. For example, Dr. Courtney admits to having considered only a limited subset of documents, not the complete evidentiary record. EX2121, 44:8–45:22; *see also id.*, 34:1–38:9; EX1037 ¶¶4–5. Dr. Courtney even went so far as to opine on the issue of motivation-to-combine without indicating that she had ever considered the Peev airsoft reference Petitioner seeks to combine with Spitballs, (EX1037 ¶27), without knowing “the elements of

proving or disproving obviousness,” (EX2121, 21:17–22:14), and without having “any opinions about the [’282] patent[,]” (EX2121, 33:8–13).

Further still, Dr. Courtney, who admittedly is “not a chemist,” was also “not aware” that the claim term super absorbent polymer had been construed by the parties. EX2121, 60:16–61:13; *see also* Pet. 20–21 (SAP claim construction). She therefore opined erroneously that EX1046 illustrates the deformation of a “hydrogel (*SAP*),” when this document never uses the term SAP and gives no indication that the gel balls it describes satisfy the construed requirements of a SAP. EX1037 ¶51; EX2121, 61:6–62:14; Reply 11–12. Despite having no substantive communication with Dr. Reitman, Dr. Courtney made several affirmative statements about SAPs that purportedly come “from Dr. Reitman” but have no basis at all in Dr. Reitman’s declaration or cross-examination. *Compare* EX1037 ¶55, *with* EX1017 ¶¶18–73; EX2121, 30:12–31:8 (confirming no “substantive discussion” with Dr. Reitman).

In sum, Dr. Courtney’s testimony is too untimely, too unqualified, and too unreliable for the Board to credit.

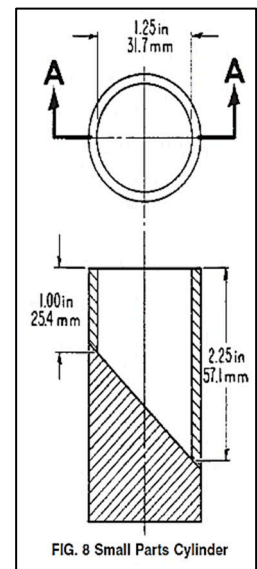
## **2. Petitioner’s New Motivation Theory Based On ASTM Standards Comes Too Late, and Is Flawed Nevertheless**

The Board should cast aside Petitioner’s new theory that the ASTM standards support the Peev-Spitballs combination as procedurally impermissible and forfeit. Regardless, the ASTM standards do not support the Peev-Spitballs combination for

all the reasons explained in Patent Owner's Response (at 19–21, 27–28). Besides being largely attorney argument, Petitioner misinterprets these documents.

To start, Petitioner's suggestion that ASTM F2748–08 “does not provide a solution” to the injury risk of airsoft contradicts the standard's plain language. Reply 14–15. ASTM F2748–08 includes numerous safety solutions, including requirements that airsoft guns: “must shoot at an energy level under 1.0 joules”; “shall have a trigger guard”; must have “[s]afety devices”; and “should not accidentally discharge when exposed to a drop.” EX2029 pp.2–3. Moreover, as noted above, the companion standard ASTM F2679–07 states that “[e]ye protection must be worn,” (EX2028 p.1), a safety solution on which the parties' experts agree.

Petitioner is also wrong to suggest that ASTM F963–07, the standard for toys, supports the Peev-Spitballs combination, (Reply 15), merely because it requires that “rigid projectiles fired from a toy that has a kinetic energy that exceeds 0.08 J...shall have an impact surface(s) of a resilient material,” (EX2119 p.17). Resilient or not, ASTM F963–07 cannot possibly support using Spitballs as ammunition because this toy safety standard forbids the use of projectiles, like Spitballs, “that would fit within the cylinder shown in Fig. 8 [(right)].” EX2119, p.17, p.10. The width and minimum depth



of this small-parts cylinder are both greater than the 0.6” diameter of a hydrated Spitball (and any hypothetical 6 mm Spitball).

Petitioner is no more correct regarding ASTM F2679–07, a standard that defines airsoft ammunition as “non-liquid filled” and, thus, excludes Spitballs. EX2028 p.1; *see* POR 19–21; EX2015 ¶¶63–68. The claim by Petitioner’s attorneys that Spitballs are not “filled” with liquid because they “become a gel” is disproved by Petitioner’s expert chemist, Dr. Reitman. As Dr. Reitman put it, “Spitballs were *swelled* with water” and SAPs “are a large class developed to provide the ability to *absorb* and *hold* liquids.” EX1017 ¶65, ¶21.

Looking to distance itself from Dr. Reitman, Petitioner turns to Dr. Courtney’s testimony that a POSITA would not have thought Spitballs were liquid filled because, “[w]hen a SAP ball shatters upon impact, water molecules remain co-located within the polymer fragments.” Reply 13. But Dr. Courtney is “not a chemist” and not qualified to offer this opinion. EX2121, 61:12–13. And besides, the question is not whether or how liquid is *released* from the Spitballs; it is instead whether Spitballs are “filled” with the water they indisputably absorb and hold. Of course they are. Petitioner similarly misses the point in attempting to constrain “liquid filled” in ASTM F2679–07 to paintballs. Reply 16. ASTM F2679-07 lists “paintballs” separately from “liquid filled...projectiles,” meaning the terms are not identical in scope. EX2028, p.1.

**B. Petitioner’s Flawed Analysis on Reasonable Expectation of Success Overlooks Key Aspects of the Peev-Spitballs Combination and the Claimed Invention**

It is common ground that Spitballs, as disclosed, could not be launched from an airsoft gun like the one Peev teaches. Mr. Delman readily conceded that adjustments would have to be made to prevent “premature breakage” of the ammunition—i.e., [i] the “gel strength” of Spitballs would need to be increased; and/or [ii] the force would need to be reduced. *See* EX1016, ¶¶78–79. Petitioner’s Reply does not refute Dr. Kudrowitz’s testimony that Mr. Delman’s force-reduction proposal would be viewed as a “downgrade” that a POSITA would not have been motivated to make. EX2015 ¶74; Reply 17–21. As for Mr. Delman’s proposal of increasing gel strength, it cannot be credited without undercutting the expectation success on aspects of Petitioner’s case that rely on Spitballs’ softness.

Petitioner’s conundrum stems from Dr. Reitman’s testimony during deposition that the gel strength and softness of SAPs have an inverse relationship—increasing one, decreases the other. *See* POR 37–39 (citing EX2030, 110:3–111:13, 112:4–12, 126:11–15). Petitioner does not deny or refute this conceded fact, which begs a critical question: Why would a POSITA, aided by a chemist like Dr. Reitman, reasonably expect that the gel strength of Spitballs could be increased to prevent premature breakage while retaining the softness required of Petitioner’s motivation

theory and its mapping to the Challenged Claims? Rather than answering, Petitioner tries to sidestep this thorny issue altogether.

For example, Petitioner argues that *any* projectile formed from SAP is necessarily a soft projectile. Reply 20. But this argument reads the word “soft” out of the Challenged Claims, flouting a fundamental canon of claim construction. EX1001, 9:29–33; *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.” (citations omitted)). Furthermore, it has already been established by Mr. Delman that not all SAP projectiles are soft—they can also be “firm.” EX1004 p.263:4–5. Claim limitations aside, Petitioner cannot escape this issue for the additional reason that Spitballs’ softness is also fundamental to Petitioner’s softer-means-safer motivation theory.

Petitioner also cites irrelevant testimony from Dr. Reitman and Patent Owner’s ITC chemist, Dr. Fuller, to the effect that the properties of SAPs can be modified to change their softness or preempt the premature breakage problem. Reply 18–19. But neither expert ever opined that gel strength could be increased without sacrificing softness. And neither expert ever opined that there was a reasonable expectation of success in achieving a *soft* SAP projectile with sufficiently increased gel strength to withstand the firing forces of a high-powered airsoft gun like Peev’s—the kind Petitioner says raise injury concerns.

Lastly, Petitioner accuses Patent Owner and Dr. Kudrowitz of demanding physical combinability of the prior art, (Reply 21), which is untrue. As the law requires, Patent Owner and Dr. Kudrowitz are addressing issues that stem from the way Petitioner constructed the Peev-Spitballs combination it chose to assert against the Challenged Claims. *See L.A. Biomedical Research Inst. at Harbor-UCLA Med. Ctr. v. Eli Lilly & Co.*, 849 F.3d 1049, 1064 (Fed. Cir. 2017) (“[T]he adjudicator must determine...whether a person of skill in the art at the time of the invention would have had a reasonable expectation of success in pursuing that combination (cleaned up)). It was Petitioner and its experts, after all, who proposed gel strength adjustments to carry out the Peev-Spitballs combination. And it was Petitioner who relied on the “mushy” description of Spitballs to address the softness claim requirement and to support a softer-means-safer motivation theory. The law finds no “fault...[in] analyzing Petitioners’ obviousness grounds in the way presented in the Petition.” *Samsung Elecs. Co. v. Elm 3DS Innovations, LLC*, 925 F.3d 1373, 1382-83 (Fed. Cir. 2019).

**C. The Objective Indicia Evidence Confirms Nonobviousness**

**1. Petitioner’s Attorney Argument Cannot Rebut the Extensive Record Evidence on Nexus**

This record contains extensive evidence that the patent-practicing Xploderz products enjoyed commercially significant, praiseworthy benefits over the

competition—“more distance” and “more ammo.” Unable to credibly contest this fact, Petitioner’s Reply instead labels these benefits “unclaimed features” and says they are “irrelevant” to nexus. *See* Reply 21–24. The evidence tells a different story.

As explained throughout Patent Owner’s Response, the evidence shows that:

- (i) The unique characteristics of the combined projectile launcher and SAP ammunition set forth in the ’282 Patent’s claims 8, 19, and 20 produced benefits of “more distance” and “more ammo” that the patent-practicing Xploderz products possessed over other blaster toys on the market (*e.g.*, POR 55–57); and
- (ii) Xploderz’ undisputed commercial success and industry praise were a direct result of these unique characteristics and benefits of the claimed invention (*e.g.*, POR 45–55).

Among other sources, Patent Owner produced expert witness testimony from Dr. Kudrowitz, fact witness testimony from a founder of the toy company that launched Xploderz, and numerous third-party documents, all of which speak in harmony regarding these critical points on nexus. *See id.* Petitioner failed to submit contrary rebuttal evidence, and Petitioner’s “[a]ttorney argument is no substitute.” *Enzo Biochem v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005).

## **2. Petitioner Presents the Wrong Legal Framework for Nexus**

Petitioner’s factually unsupported “unclaimed features” argument is also legally flawed. The law says there must be “a nexus...between the sales [and praise]

and the merits of the claimed invention,” such that the sales and praise “were a direct result of the unique characteristics of the claimed invention.” *In re Huang*, 100 F.3d 135, 140 (Fed. Cir. 1996). And that is exactly what Patent Owner’s evidence shows. *See infra* §II.C.1. Lacking rebuttal evidence, Petitioner tries to create a new legal requirement that the benefits of the invention—here, “more distance” and “more ammo”—must be recited expressly as claim features. Reply 21–24. But precedent rejects this approach.

For example, in *WBIP, LLC v. Kohler Co.*, 829 F.3d 1317 (Fed. Cir. 2016), the Federal Circuit sustained a jury finding of nexus based on evidence showing “the claimed combination [] results in a low-carbon monoxide emission marine gen-set,” *id.* at 1331, even though the claims did not recite the low-emissions benefit, *see id.* at 1325. Similarly, *In re Natural Alternatives, LLC*, 659 F. App’x 608 (Fed. Cir. 2016), the Federal Circuit found a nexus between objective indicia evidence and a claimed “deicing” composition that delivered “many benefits” over the prior art, such as “reducing corrosiveness” and “reducing overall cost.” *Id.* at 614–15. There, as here, the evidence showed that these benefits resulted from practicing the claimed invention but were not themselves expressly recited claim features. *Compare id.* at 614–15, *with id.* at 610. More recently, in *Volvo Penta of the Americas, LLC v. Brunswick Corporation*, 81 F.4th 1202 (Fed. Cir. 2023), the Federal Circuit vacated the Board’s final written decision for (*inter alia*) not properly crediting the patent

owner’s nexus argument and evidence that the claimed combination led to “certain benefits” praised by the industry. *Id.* at 1212. In *Volvo*, as here, the claims articulated the feature combination of an inventive device without expressly reciting its praised benefits. *Compare id.* at 1212, *with id.* at 1206. As *WBIP*, *Natural Alternatives*, and *Volvo* all show, it would be error to adopt Petitioner’s position that the “more ammo” and “more distance” benefits produced by the claimed invention should be deemed irrelevant merely because those words do not appear in the claims.

The *Ormco* and *Lectrosonics* decisions cited in the Reply do not support Petitioner’s unprecedented view of unclaimed features. *See* Reply 24, 26–27. Each of those decisions applies well-established law to their specific facts, where (unlike here) the evidence was that unclaimed features produced the benefits at hand. Neither decision mislabels a benefit of the claimed invention as an unclaimed feature like Petitioner tries but fails to do here.

### **3. Claimed Features Caused Xploderz’ Success and Praise, Not Failure**

Petitioner’s sole attempt to engage with the facts on nexus is to claim falsely that “[t]he ‘as-claimed’ blaster...caused [Xploderz] failure.” Reply 24–25. As Petitioner knows, this record includes uncontroverted testimony from two industry experts—Dr. Kudrowitz (a professor of toy design) and Lynn Rosenblum (former Director of Marketing at Mattel Toys)—supporting the exact opposite conclusion.

These industry experts testified that toys typically have a short product life cycle, sometimes less than a year. EX2015 ¶167; EX2046 ¶¶148–153. They further explained how the fact that Xploderz endured as a product line for four years with multiple line extensions, all of which maintained the claimed feature combination as a common denominator, demonstrates both commercial success and nexus. EX2015 ¶167, ¶228; *see also id.*, ¶¶96–97, ¶127 (citing Appendix 1); EX2046 ¶154.

More, Petitioner draws the wrong conclusion from the testimony of Mr. Ben-Ezer and Mr. Tomulonis. Neither of these witnesses found fault in the claimed features of the '282 Patent. They merely identified ways—years after the fact—that a good product (Xploderz) could have been even better. Reply 24–25; *see also* EX2032, 231:5–6. Petitioner's attempted criticism does not dampen the fact that the as-claimed ammunition combined with the as-claimed blaster drove Xploderz to immense commercial success and to garner industry praise. *See* EX2015 ¶227.

**D. Undercutting Simultaneous Invention, Petitioner Does Not Deny That Kim and VAT19 Lack Claimed Features**

“The possibility of near simultaneous invention by two or more equally talented inventors working independently may or may not be an indication of obviousness when considered in light of all the circumstances.” *Ecolochem, Inc. v. S. Cal. Edison Co.*, 227 F.3d 1361, 1379 (Fed. Cir. 2000) (cleaned up). The circumstances here show it is not.

As a threshold matter, Petitioner’s alleged “simultaneous invention” evidence is necessarily weak because Petitioner failed to establish that Kim or VAT19 disclose the Challenged Claims. *See* POR 61–62 (citing EX2015 ¶¶236–239); EX2007 p.100 (ALJ concluding “there is *no* disclosure that [Kim’s] gel material is a SAP” (original emphasis)). Petitioner does not deny this failing. Reply 28–29.

Still, Petitioner maintains that Kim supports its motivation for combining Peev and Spitballs. But the opposite is true. Rather than hydrated SAP projectiles, Kim opted for a “luminous” gel formed from a “cleaning substance” that requires “individual packaging.” EX1022 p.9 ([0015]–[0017]). Kim shows that there were many different types of potential ammunition—not a small finite number (*see supra* §II.A.1.iii)—and even a search for softer ammunition would not have led to SAPs or even hydrogels. *See* EX2015 ¶238.

The same reasoning applies to VAT19, which merely shows Spitballs being blown out of a tube and indisputably fails to disclose the kind of projectile launcher recited in the Challenged Claims. POR 62 (citing EX2015 ¶239). As Dr. Kudrowitz explained in his undisputed expert testimony:

If combining the as-claimed SAP ammunition with the as-claimed projectile launchers was so obvious and easy to accomplish, surely the Vat19 video would have demonstrated that technology. But it does not.  
EX2015 ¶239.

### III. CONCLUSION

Petitioner's failings on motivation-to-combine cannot be overlooked, nor can Patent Owner's extensive un rebutted evidence of nonobviousness. Patent Owner therefore respectfully requests that the Board uphold the Challenged Claims.

Respectfully submitted,

Date: April 18, 2025

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**CERTIFICATION UNDER 37 CFR § 42.24(d)**

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Patent Owner Response totals 5,590, which is less than the 5,600 allowed under 37 CFR § 42.24(b)(1).

Respectfully submitted,

Date: April 18, 2025

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**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on April 18, 2025, a complete and entire copy of this Patent Owner's Sur-Reply and its supporting exhibits were provided via email, to the Petitioner by serving the email correspondence addresses of record as follows:

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