

And Then There Was None

Muzzle flash, dust, and noise—the three dead giveaways—are drastically minimized with a SureFire TSR suppressor. | By Sean P. Egen



Small, smaller, smallest—SureFire's combat-proven "K-can" (top) is now joined by the Mini and the Micro. The smallest one, the Micro, is designed to reduce flash, dust, and sound. Its Prime Directive, as Capt. Kirk would describe it, is to extend no more than 2-inches from the muzzle.

so is not as TV and films would have you believe: to "neutralize" the enemy with a barely perceptible "whisper" from an assassin's rifle. That's pure Hollywood. No suppressor can eliminate all of a gunshot's noise. (Nor can a fluffy feather pillow over the muzzle, as those same inaccurate movies have been known to portray.) Sorry, Hollywood, but a suppressor is first and foremost a safety tool— not a hit man's go-to accessory.

The primary reasons for suppressing a weapon's sound signature are: to protect the hearing of the shooter and those around him; to better hear communications, commands, and other important audio cues in the heat of battle; and to help conceal a shooter's position.

Reasons one and two are pretty self-explanatory. Lower gunshot noise levels obviously lower the chances of potential hearing damage and increases what one is capable of hearing around him while shots are fired. It's not possible to specify exactly how much any given suppressor will attenuate gunshot noise because it depends on several factors, including the weapon, the ammo, the terrain or environment, even atmospheric

Let's set one thing straight right out of the gate: The only way to totally suppress a firearm's signature is to not fire it. So the "total" in "Total Signature Reduction" (TSR), SureFire's philosophy on building suppressors, does *not* mean absolute signature reduction. That's impossible. Rather, it means across-the-board signature reduction in every category— sound, flash, and dust— any of which can give away a shooter's position and compromise his safety.

So, if you're looking to make your firearm "totally" silent and "totally" invisible when it's shot, try trading it in for a cross-bow. But if you're looking for a lightweight, durable tool that effectively suppresses a weapon's signature on every front, read on. There just may be a SureFire Fast-Attach® suppressor in your future.

Signature One: Sound

Clearly, the thing a *sound* suppressor is best known for is suppressing a weapon's sound signature. But the reason for doing



conditions. So anyone promising X-number of decibel reduction from their suppressor should concentrate on suppressing the B.S. coming out of his own two lips instead.

That said, SureFire suppressors typically reduce a weapon's sound signature to below 140 dB, considered the maximum safe level by OSHA. (An unsuppressed gunshot is typically between 170 and 180 dB.) So we've got reasons one and two covered. But a reduced sound signature also provides another significant benefit in combat—masking your location to make it difficult for an enemy to pinpoint from where you're firing.

"You can hear that a shot's been fired," explains SureFire Suppressor Division Director Barry Dueck, "but you can't tell where that shot came from because you're not hearing the report come out of the weapon."

The reason you don't hear any "report" is because the shock wave coming off the bullet—the sonic crack—is louder than the suppressed weapon's gunshot. So what the enemy actually hears may sound as though the shot

was fired from 30 or 40 degrees to the left or right of where it actually originated—again depending on topography, ammo, atmospheric conditions, and other factors. Which means a thoroughly confused enemy often has no idea where to return fire. Or which direction to turn and run.

"I've talked to numerous combat veterans who have stories of shooting at bad guys [while using suppressed weapons] and having them actually run toward the shooter to get away from it," Dueck elaborates, adding that the bad guys eventually figure it out from the direction the bodies around them are falling.

If that's not a tactical advantage in a firefight, water isn't wet.

Signature Two: Flash

Anyone who's ever fired a gun in the dark knows just how big the fireball coming out the muzzle can be. It may as well be a flashing neon sign

pinpointing your location for the enemy. Or imagine that same fireball compromising your own night-adapted vision just as shots are exchanged. It's clear that minimizing a weapon's flash signature can be critical in certain situations.

As with sound suppression, it's not really possible to quantify exactly how much a suppressor will reduce a weapon's flash. It, too, is dependent on ammo, atmospheric conditions, and the weapon, including its barrel length. "Typically," Dueck adds, "the shorter your barrel, the more flash."

A SureFire suppressor can substantially reduce a weapon's muzzle flash, sometimes to the point where it's barely visible. But flash reduction is a purely visual thing, so descriptors like "substantially" and "barely visible" don't really do a SureFire suppressor justice.

I highly recommend checking out SureFire's online suppressor video. In it, you can view a live-fire demo of flash-signature reduction. You can access this video by visiting SureFire's website at www.surefire.com/video-channel, or you can go directly to YouTube at www.youtube.com/watch?v=QJGEQXijLTo.



Muzzle protrusion is an issue for any barrel-mounted suppressor (hence another genre known as "integral suppressors" such as the MP5K) but the Micro minimizes additional length at a scant 2-inches.

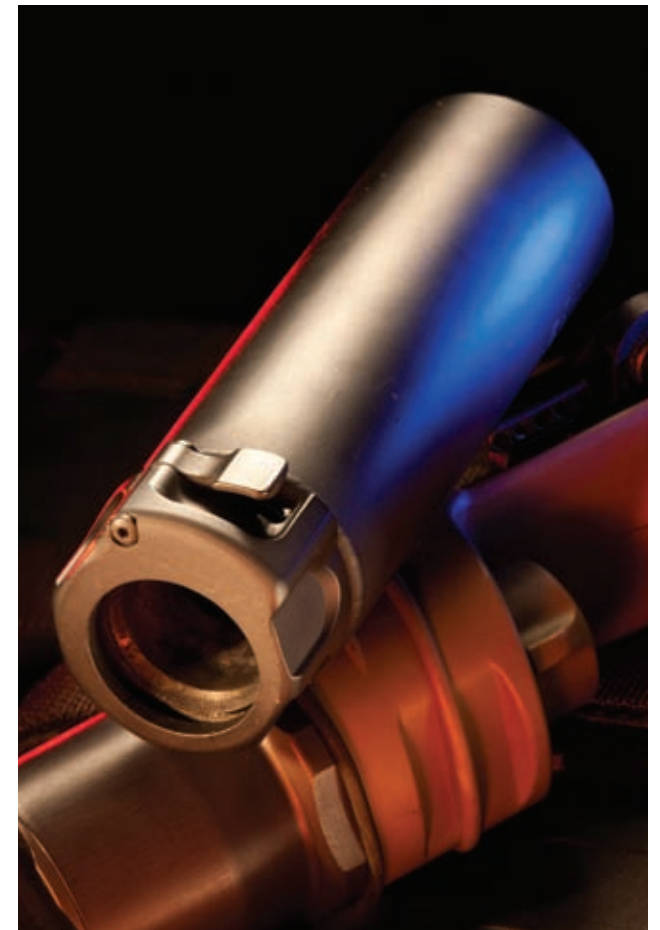
And for any cynics out there, I was personally present the night the flash-signature footage was shot, so I know for a fact it wasn't faked, fudged, or creatively edited.

Signature Three: Dust

While not as visible as a glaring fireball at night, it's the same basic principle at work here—a cloud of dust kicking up when you fire your weapon can give away your position quicker than a timeshare salesman gives away invitations to "short, no-obligation" presentations. Especially in arid or desert environments, where the majority of combat is taking place these days.

Again, mere words aren't really adequate to paint an accurate picture of the difference in dust signature between a suppressed and unsuppressed weapon. So I invite you a second time to view a "short, no-obligation" live-fire demo—this time using a SureFire suppressor and an M249 Para SAW—on the same video.

Note the ovate lock-ring on SureFire suppressors, a patented feature (right) which allows the suppressor to suck up tight against the shoulder of an adapter. The tighter it fits, the less POI shift, which is why thread-on suppressors have inherent defects in design.



The size of the new Micro and Mini compared to a Chris Reeves fighter.

The difference is night and day. The dust kicking up from the unsuppressed full-auto fire looks like a sirocco blowing across the Sahara.

If a picture is worth a thousand words, then this video may be worth a million. But, now that we have an understanding of TSR's significance— and hopefully a visual reference from the video I keep pimping (last plug, I promise)— we can dive into why it should be a SureFire suppressor on the end of your barrel working hard to reduce these three potentially dangerous weapon signatures.



The new Micro from SureFire is just about 11 cartridges tall— and it doesn't weigh much more.

it was barely measurable. "And it's fully repeatable," he adds proudly.

Of course, one performance gain sometimes comes at the expense of another, and in the case of the Titanium Series suppressors, their reduced weight means they're not quite as resilient to heat as their metal-alloy counterparts. But this is really only an issue on full-auto, where a suppressor can heat up faster than a stolen ATM card with the PIN number written on it.

"I'd have no problem using one for anything I'd use a rifle for," Dueck says of his titanium suppressors, "and I put a lot of rounds downrange." A lot is an understatement. He may put 1,000 rounds through a suppressor over the course of only a couple hours at the test range.

For operators who primarily use semi-auto fire, a Titanium Series suppressor's reduced weight represents a big advantage. But if full-auto is on the menu, a SureFire metal-alloy suppressor is still the way to go. With either, durability is not something you need ever worry about.

Extreme Durability

If it's important to reduce a weapon's signature on every front, then it's equally as critical that the suppressor not fail just when it's needed most. The high-strength materials used in SureFire cans are able to withstand the extreme heat, pressure, and particle blasts to which any suppressor is exposed. Combine that with over-engineering and manufacturing processes more redundant than the space shuttle, and it's easy to see why SureFire suppres-

POI Shift

One reason for reluctance to use a suppressor is because there can be a substantial, and very inconsistent, shift in a weapon's point-of-impact (POI) when a can is attached. It's tactically unsound to re-zero a weapon every time a suppressor is attached.

This is not the case with SureFire cans. Why? Because they're lightweight, have extremely tight tolerances, and align and attach exactly the same way every time. So any shift in a weapon's POI is minimal *and* consistent, as in fully repeatable. Which means you can be confident where the projectile is going to hit with a SureFire suppressor attached. No re-zeroing or guesswork required.

SureFire suppressors are already lightweight, but to further reduce any POI shift resulting from even a small amount of extra weight on the end of the barrel, Dueck and his team have developed a new line of titanium suppressors that are a fraction of the weight of their high-temperature metal-alloy versions.

"They're unbelievably lighter," says Dueck of the new Titanium Series. "And if your impact shift is coming from weight, you have even less." He cites actual cases where he was getting a minute of impact shift with a SureFire FA762K and, with an FA762K-T titanium version, a half minute or less— to the point where

sors typically outlast the barrels sporting them.

But Dueck and his team aren't content to rest on their durability laurels. They've recently redesigned the front plate on their suppressors to be even stronger and more durable— more streamlined, too. Not that the previous plate had any problems, but in their world, if there's even the slightest room for improvement, improvement's moving in.

"We've been able to reinforce the structure, and we've done internal structures that further strengthen the internal parts of the suppressor," Dueck explains. "It's less prone to damage— and it looks better!"

While it's true that you could attach a SureFire suppressor to your weapon and leave it on fulltime, these suppressors were also designed to go on and off in seconds. Yet another differentiator that sets them apart from the rest.

Fast, Secure Mounting

As noted, one of the reasons for the minimal, consistent impact shift with a SureFire suppressor is because it aligns and mounts precisely the same way every time it's attached. This is the result of an ingenious mounting design— the patented Fast-Attach® system— which places the suppressor over a precision-machined adapter semi-permanently attached to end of the barrel. And when the suppressor is off, that same adapter serves as a high-performance muzzle brake or flash hider, depending on which one is attached.

Attaching the suppressor is as easy as placing it over the adapter and twisting the lock ring until secure. Removing it is merely a matter of pressing the release tab to unlock the lock ring, twisting the ring in the opposite direction, and pulling off the suppressor. Five seconds max; no tools needed.

Easy as easy can be, right? Just not easy enough for this bunch of perfectionists. In their never-ending mission to make their products the best they can possibly be, SureFire's suppressor boys have improved their already easy-to-use lock ring. In Project Manager Garin Lee's words, "It's an evolution for a much more user-friendly latch."

"Your gripping surface on it has gone up by more than a third," adds Dueck, "which makes it a lot easier to grab hold of. We've also added a greater margin of safety. We've got it multiple factors stronger even than our existing lock rings, which have proven failsafe."

But if they've proven so failsafe, why bother changing them?

"One of the things we've had happen, a handful of times," Dueck answers, "is people put-



The new Mini from SureFire is about the size of a bang. Sort of a juxtaposition here, as the Mini takes away most of the flash and a lot of the bang from a gunshot, unlike its companion.

Below: Note how the new tab on the locking ring is recessed to prevent Mongo from trying to pry the can off the gun. Twist, Mongo, twist.



ting screwdrivers under the latch release and trying to pry the latch up because they don't realize it's a push latch."

To reduce the possibility of this rare occurrence from happening in the future, the new lock rings feature an improved release latch with a lower profile. This lower profile also decreases the chances of the latch accidentally releasing, should it be bumped

hard or dropped or knocked around in the heat of battle. While, again, it's only a very slight chance, it's enough of a "what if?" to spring Dueck and his team— many of whom, including Dueck himself, are ex-operators from various branches of the military— into action.

The new lock rings will also feature user-replaceable parts so, should a repair ever be necessary, it can be made directly by the operator or armorer rather than requiring the entire unit to be sent back to SureFire.

"These are also all backwards-compatible," adds Dueck. "So you can have an old adapter and a new suppressor, same model, and it still fits."

This is particularly good news for armorers in military and law enforcement, where SureFire suppressors have been making impressive inroads.

One example: every Marine Corps M40A5 sniper rifle now comes standard with a SureFire MB762SF muzzle brake/adapter and a SureFire FA762SF suppressor.

SureFire's commitment to Total Signature Reduction is evident in the performance of their Fast-Attach suppressors on every front: sound, flash, and dust reduction. And their continual tweaks and improvements to their already best-in-class products demonstrate their commitment to building the best suppressor humanly possible. Maybe TSR should be expanded to stand for "Total Suppressor Refinement" as well.



The previous generation locking ring (right) cinches itself to the adapter on the gun, while the "new and improved" version (which it really is) self-locks. Note again the recessed locking lever (left) compared to the more exposed lever on the earlier version.

SureFire 5.56mm Carbine Suppressor Comparison

Model	Material	Weight	Diameter	Length	Muzzle Over-Hang
K-can <small>(Model FA556-212)</small>	high-temp alloy	16.0 ounces	1.5 inches	6.0 inches	4.6 inches
Mini	high-temp alloy	14.0 ounces	1.5 inches	5.0 inches	2.75 inches
Mini-T	titanium	8.0 ounces	1.5 inches	5.0 inches	2.75 inches
Micro	high-temp alloy	12.0 ounces	1.5 inches	4.2 inches	2.0 inches

SureFire For Dummies

The reason for a SureFire BSD (blank safety device) can be summed up by two old adages: "accidents happen" and "train with what you use." These bright-yellow safety devices are fully compatible with blanks, for blank-fire training, but they'll also trap up to three live rounds, should a worst-case training scenario ever occur: a trainee actually manages to load live rounds into his "blank"-firing weapon.

"It's a precaution to stop someone who's already shown a total lack of concentration by, first, bringing live rounds to training and, second, actually loading a live round in a magazine," says Barry Dueck, director of SureFire's Suppressor Division. "Instead of just being a safety device, it's also a training tool that mimics the way you'd normally use your weapon," he adds.

Which means, if you're participating in an exercise in which you'd normally have a SureFire suppressor attached to your weapon, a SureFire BSD— which is exactly the same size and weight as the suppressor it mimics— can be used instead, for safer training.

Here's how it works. The BSD has an exhaust port on its bottom that stays sealed when the weapon fires blanks. Should a live round somehow get loaded and fired, the membrane sealing the exhaust port punctures, and the gunshot gets *substantially* louder. This provides the shooter with a not-so-subtle audio cue that something's not right. Should that fail to get his attention, the giant flame coming out that same exhaust port should.

"Fire and brimstone are breathing out the bottom of your suppressor," explains Dueck. "And it goes from around 128 decibels to the mid 150s."

Of course, nothing can be made totally idiot-proof, but SureFire BSDs are engineered and built to safely trap up to three live rounds, giving any "confused" (read: clueless) trainees two more chances to figure out that they've made a big mistake. "If that doesn't stop some-

body from firing... Well, we've definitely gone out of our way to really add to the safety," Dueck adds.

Like a motorcycle helmet made to take one fall and then be replaced, once a SureFire BSD has trapped a live round, it needs to be replaced— a small price to pay for possibly saving a life.

SureFire BSDs are currently available for 5.56mm long guns only, with other calibers slated for production. A single SureFire BSD will accommodate a variety of different 5.56mm firearms— 20" barrel, 14" barrel, SAW, what have you— thanks to an interchangeable orifice that can be easily switched out, once again simplifying the life of military and law enforcement armorers. ■

