Sound Tip

Sound Sensation!

Do you believe in miracles? Or magic potions that will improve the sound of the stereo system? We didn‘t either – until now, because we measured it and tested it in our listening test.

In all honesty: By nature, I am a down-to-earth engineer who prefers to rely on facts and physical explanations and is rather skeptical about alleged "sound improvers". I would rather rely on my 20 years of experience as a technical and test editor who has his sound measurement technology under control and boasts of listening experience with more than 2000 HiFi components - a small "magic box" for the ultimate sound in the signal path wouldn‘t catch my attention. Well, what can I say – that was true until a few weeks ago, because I received a set of micro-fuses from the Berlin distributor of HiFi-Tuning. Yes, you read correctly: micro-fuses, the small glass bulbs with fuse wire, which ensure the reliability of an electrical product and simply "blow" in case of emergency. The substitution of conventional micro-fuses for the expensive brand with the Supreme³ name for around 33 Euro should supposedly drastically improve the sound of any HiFi or AV system. My electronics engineer‘s heart told me: “A 2 cm-long piece of wire in the fuse – what effect will this have on the sound?“

The Test Despite all the skepticism and prejudices: My curiosity and passion as a tester of HiFi equipment still led me to convert the PMA 1510 full amplifier from Denon randomly connected in the listening room on the power supply side with a “special fuse“. I could quite easily switch the 3.15 ampere fuse in this case for protection of the power transformers after opening the housing cover. *(However, be warned that opening the device compromises any warranty claims and can be inherently dangerous. In any case, disconnect the power connection and in case of doubt, leave this fuse change to a professional!)* But what happened then has actually baffled me. After changing the fuse and switching on the amplifier, I could not believe my ears: Voices came across more realistic, much more present and with more body. In the bass, more precision was evident, bass drum beats seemed to be deeper, richer and drier. Even the otherwise-critical spatial imaging of individual instruments was clearer and less washed-out than before. You can certainly understand my astonishment -I almost doubted my own hearing. So, as in any of our listening tests, I took some of my editorial colleagues to our listening room and asked for their comments. Of course, I did not previously explain the fuse change, but just carried it out and asked about the impressions of my colleagues. The comments: “Precise“, “Wow, what was that? It sounds much rounder and coherent“ and “Is it still the same amplifier?“. After three to four rounds of comparison, it was absolutely certain: this fuse drastically improves the sound! But how can that be?

Measuring technique: If there is a marked difference in the listening test, you should be able to measure it, or so I thought. However, I could not measure any differences with our measuring station - neither in the frequency response, nor in the distortion response, nor in the pink-noise – *except* in one aspect., - During the measurement of the damping factor of our integrated amplifier test candidate using the Supreme³ fuses, the damping factor increased from around 350 to 500. *(Reminder: The damping factor is a measurement of the internal resistance of the amplifier and usually reveals something about its‘ control over connected speakers; the higher the damping factor, the higher the control – at least in theory.)* But here I had clear proof of the effect of the damping factor, e.g. the substituted micro-fuse, on the sound. How could this be? To find out, we devised an elaborate new measuring system, to analyze the electrical properties of the fuse.. We measured the voltage drop over the fuse (see measurement diagram), which is three times lower in a Supreme³ than in a standard fuse. Significantly more voltage is lost at a higher current flow through the standard fuse, which is then no longer available to the amplifier circuit.. The result would have to be dynamic loss and slower impulse response, which we experienced in the listening test. The Berlin HiFi-Tuning manufacturer’s own explanation reads slightly peculiar for non-techies, because his explanation is a cryogenic treatment (ultra-deep cooling) and 24-hour quantum-level treatment. What convinced us much more is the use of special silver/gold fuse wires and a complex soldering of the fuse wire with the head cap made of fine silver. This would explain the lower electrical resistance of the Supreme³ fuse that we measured., For example, a 250 mA fuse measured at around 1.2 Ohm (as opposed to 3.5 Ohm for a standard fuse). It is also possible that the polyolephine wrapping of the fuse element (known as shrink tubing) is a sonically effective "trick" of the manufacturer for resonance suppression; however, we couldn’t determine the difference "with and without" without destroying the fuse.

Safety: Speaking of destruction: Of course, we also tested the Supreme³ fuses for its real function as “fuse“. The miracle fuses actually “burn out“ at exactly the specifications defined by IEC 60127-2, upon reaching their target value (210 % of the nominal current after 2 minutes, or 275 % of the nominal current after 10 seconds). Technically, and in terms of safety, we thus have no doubts on the substitution of these fuses, as our measurements prove.

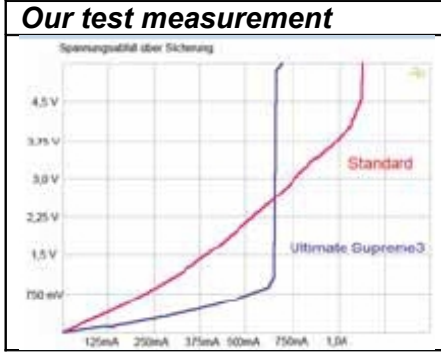
Cross-check: Where do the Supreme³ fuses work? To answer this question, we equipped our most important reference test equipment in the listening room with this sound tuning. The audible effect there was not consistently strong or effective, but still unmistakably recognizable. Based on our experience, the substitution in the power supply section of full amplifiers made the biggest impact. For example, the effect was -extreme in a Denon PMA-1510, noticeable in the Audiolab 8200, and rather low in a Symphonic Line RG14. A clear rule doesn‘t seem to exist, but very high quality products obviously don’t benefit as much as a fairly inexpensive XL-HF300 Mini System from Sharp (around 350 Euro), for example. This system benefited immensely from the substitution in the power supply fuse. Somewhat less spectacular, but still audible, was the substitution of fuses in CD players. Here a Primare CD32 (around 2,400 Euro)benefited only minimally, while a Yamaha CD-S700 (around 400 Euro) „“visibly“ came to life again. The substitution in places with high current flow (in the power supply) seems to bring the best results, which is technically understandable due to the lower resistance of the Supreme³, as confirmed by our measurements.

Conclusion: I have never before heard of a sound tuning for around 30 Euro with such clearly audible effects! In extreme cases, the substitution of a standard fuse for a Supreme³ from Hifi Tuning improves the sound of your system even at what feels like 100 %! Amazing, astounding, measurably proven by us and actually true: Supreme³ micro-fuses for around 30 Euro are very well-invested no matter what – definitely check them out!

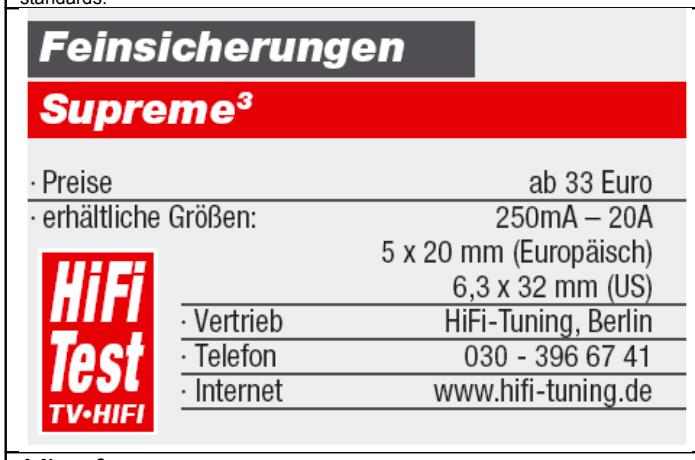
Michael Voigt

HiFi Test TV Video 5/2011

Our test measurement



It's true: Our measurement of the voltage drop over the fuse clearly shows the internal resistance of the Supreme 3 micro-fuse three times lower. Measured here: 250 mA fuses that burn out at about 250% of their nominal value (recognizable by the steeply rising flanks of the curves. Supreme 3 exceeds standard fuses in conforming to normal burn out standards.



Microfuses

Supreme³

Prices:	from 33 Euro Distribution HiFi-Tuning, Berlin GERMANY
Available sizes:	100 mA. – 20 A mp. 5 x 20 mm (European) 6.3 x 32 mm (US)
Manufacturer:	HiFi-Tuning, Berlin, Germany

Test object Denon PMA-1510: here we have swapped the original power supply fuse (3.15 A) for a "miracle fuse". Attention, line voltage: In case of doubt, have this procedure performed by an electronics technician or specialist dealer