

ANALOG CORNER

BY MICHAEL FREMER

THIS ISSUE: Mikey takes a close look at a record-cleaning approach that mixes cavitation with controversy.

The Seven “M”s of the Charles Kirmuss Vinyl Restoration System

Back in the 1990s, my friend Nick Despotopoulos and I published an article in *The Tracking Angle* titled “Zen and the Art of Record Cleaning Made Difficult,” describing author Michael Wayne’s record-cleaning methodology.¹ That regimen, like the article itself, was the most comprehensive one I knew of at the time.

Though complicated and time-consuming, Wayne’s methodology produced outstanding results. His goal was not just to *clean* a record but to restore it to as-new condition by removing from it *every* contaminant found on and, in some cases, *in* the vinyl—impurities baked into the groove owing to heat generated during playback. With Wayne’s system, you’d know if the record’s original owner was a smoker (or a toker)—yet removing nicotine or THC deposits was but the beginning of an involved and intensive process.

Though Mr. Wayne’s system is not to be dismissed, record cleaning and restoring has changed for the better since the publication of that article, especially with the introduction of cavitation-based record cleaning—an approach that uses an ultrasonic wave to create, within a cleaning bath, energetic, microscopic scrubbing bubbles. While ultrasonic cleaning has been around for decades, its application to record cleaning was pioneered by Reiner Gläss in his Audiodesksysteme Gläss Vinyl Cleaner. Today, a number of other ultrasonic record-cleaning products are available, including the Kirmuss Audio KA-RC-1 (\$870).

M is for machine

I first encountered the eccentric, lab-coat-wearing, stuffed-rabbit-toting Charles Kirmuss at AXPOA 2018²

(although he was beaten to the lab-coat shtick by Jonathan Monks of Keith Monks Audio Works, just as that company’s nominal founder beat everyone else to making a commercially viable



No disc left unturned: The Kirmuss Audio KA-RC-1 with its proprietary record-spinning mechanism in place.

wet-wash/vacuum-dry record-cleaning machine).

At Kirmuss’s debut at the 2018 AXPOA, a US ultrasonic distribu-

tor called iSonic had its display right around the corner, showing a machine that appeared nearly identical to Kirmuss’s—although sans his very good patented record-spinning apparatus and with a slightly different control panel.³

Both the Kirmuss machine and the

iSonic machine operate at 35kHz. Later, I ascertained from a representative of the Chinese company that manufactures these ultrasonic baths that the Kirmuss Audio cleaner is based on a standard-issue, readily available cavitation machine like the one used by iSonic—although Kirmuss told us in an email that his machine is significantly modified by his own factory. He listed several small (but possibly important) differences.

The question of the appropriate cavitation frequency is crucial. It is also contentious. There’s a broad, nonspecific scientific consensus—this isn’t controversial—that while lower frequencies clean faster, they are more likely to damage delicate materials than higher frequencies are. Higher frequencies—approaching or exceeding 100kHz—are typically recommended for cleaning delicate things—like records?—while lower frequencies, including the 35kHz range, are thought to be suitable for generic macrocleaning of, for example, dental and medical instruments. Higher frequencies are gentler (in the general case), and because they produce smaller bubbles, they can penetrate into smaller areas—like record grooves. That’s a

1 See www.analogplanet.com/content/most-comprehensive-record-cleaning-article-ever-0.

2 See www.analogplanet.com/content/if-charles-kirmuss-record-cleaning-machine-and-regimen-correct-everyone-elses-wrong. By the way, if you go to Kirmuss’s website, you will see a video shot in my listening room in which Kirmuss demonstrates his system. He wanted to pay me for shooting the video, but of course I didn’t accept. Instead I told him that I’d happily donate to The New Orleans Musicians Clinic (NOMC) whatever he was planning to pay me. When the check for \$500 arrived, I deposited it and wrote my \$500 check to NOMC.

3 You can see both the iSonic and Kirmuss machine in this video, at around 43:53: https://youtu.be/pKT5fvj_otk.

good thing, right? So why not higher frequencies?

While Kirmuss, with his lab-coat-and-stuffed-animal shtick, can sometimes appear less than credible, he seems to have given these issues some thought. For one thing, the use of a surfactant seems critical to the Kirmuss method—not just to lower surface tension so that the water can get inside the grooves, but also for its direct cleaning action, stimulated by high-energy (but not too high) cavitation bubbles. Used with a surfactant, Kirmuss says, higher-frequency machines can damage records. “We in our design do not want the full action to enter the grooves,” Kirmuss says. 35kHz “is safer when compared to what is measured and witnessed with a 40KHz system. We performed the measurement by our 3D microscope”—a reference to the \$87,000 instrument Kirmuss uses to evaluate his record cleaner’s effectiveness. “Lower, at 25KHz, we see no action,” Kirmuss told *Stereophile*. Of course, there are other 35kHz machines on the market—including the previously mentioned iSonic.

But Kirmuss’s machine differs from all of the other multidisc cleaners in a

critical way: Instead of using a cumbersome “barbecue spit” mechanism to spin the records in the open cavitation vat—which means that all the records being cleaned must be the same size and must be removed from the bath at the same time—Kirmuss’s patented motor-drive system fits neatly atop the cleaning tank and is more user-friendly. You can simultaneously clean two 12" LPs plus one 10" and a 7" record without worrying about getting the labels wet, and you can remove one without removing the others.

Kirmuss also avers that the distance between the records is critical and that some of the other “spit” mechanisms crowd the records too closely together. Also, Kirmuss’s cleaning tank has been modified from stock to include a side-mounted low-voltage jack to power the motor drive system. That way, the records begin to turn the moment you press the cavitation button—a small but significant convenience.

It’s also for materials

The Kirmuss Audio KA-RC-1 comes with accessories: 60mL of an antibacterial/antistatic/antifungal spray; a goat-hair brush applicator; an optical-quality

microfiber cloth; a larger microfiber cloth (decorated with rabbits) to cover the work space; a circular felt mat to support the record during hand cleaning; a combination carbon fiber/parastatic felt brush; and a bottle of stylus cleaner.

All of this costs \$870—far less than at least one competing system and only slightly more than the iSonic machine and its inferior record-spinning mechanism. Granted, the accessories are not costly, but no matter how you figure it, Kirmuss doesn’t seem to be in this for the money: He’s not looking to lose money, but clearly he’s not trying to make a killing. From what I’ve witnessed, he’s more concerned with waging a worldwide war against fungus.

The antibacterial/antistatic spray is identified in the manual as a “98–99% distilled water, 1–2% propanol 1–2 diol 178 mix.” That last one is propylene glycol,⁴ an organic solvent used in, among other things, pharmaceutical preparations and as a food additive. It is nontoxic, although I found it to be

⁴ That chemical name seems made-up, and Kirmuss at first disputed that the ingredient was nothing more than propylene glycol, but a subsequent correspondence made it clear.

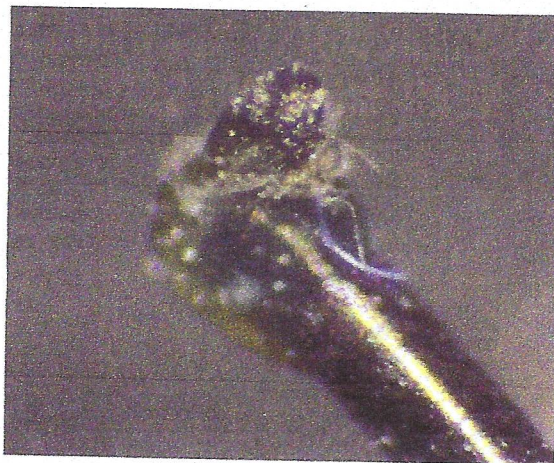
slightly irritating when accidentally inhaled.

You have to supply your own 70% isopropyl alcohol and as many gallons of distilled water as you can carry home from the supermarket—and a spray bottle that you can fill with either the latter or with reverse-osmosis-purified water.

M is for methodology, too

Mr. Kirmuss’s methodology has evolved over the past year, though the essentials remain the same, as spelled out in a new, poorly written, messily laid out, multitypeface color manual that makes the Dr. Bronner’s Castile soap bottle label appear tidy. (Why should an owner’s manual for a record-cleaning machine have on its very first page instructions on how to use it to clean jewelry?)

You start by filling the Kirmuss cleaner’s vat with approximately two gallons of distilled or reverse osmosis water, then add 40mL of 70% isopropyl alcohol. After that, you “degass” the fluid using a function built into the machine. (Degassing should be



This Ortofon had to be returned to Denmark to have the crud removed from the stylus following an incomplete record-cleaning via the Kirmuss method. Photo by Ortofon.

repeated after a few cleaning cycles; cavitation bubbles that remain in the water can decrease efficiency.)

Once that’s done, you slide the records into the top-mounted slots, start the machine, and let it run for a preprogrammed five-minute wash—the suggested default time, though you can vary it. After that, the KA-RC-1

automatically stops—and then the *real* fun begins. You remove the record, place it on the circular pad (which has itself been placed on the rabbit cloth), spray the antistatic/antibacterial surfactant onto the record in three evenly spaced spots, and then spread the surfactant with the goat-hair brush using small, circular movements. Especially on older records that have been cleaned using various fluids, a mysterious white paste will appear, which Kirmuss says is the “liberation” from the grooves of the baked-on crud.

After you do both sides, you repeat the cavitation process. In the owner’s manual, Kirmuss suggests repeating the surfactant application and recavitation steps a *minimum* of four or five times in order to fully expel the paste from the grooves. (Previous versions of the manual suggested fewer cycles.) Once you start this process, you cannot stop until all of the paste has been liberated from the grooves; otherwise, once you go to play that record, you’ll

quickly coat your stylus with a nasty, gummy, white substance that's difficult to remove. (I know some Kirmuss cleaner users have complained about their styli picking up that coating—I've heard from a few! Hence the revised instructions.)

After a few cycles, the amount of paste pulled from the grooves diminishes, and eventually so little appears that it evaporates with the surfactant. That signals that your paste pulling is finished: Time to place the record back in the vat for a final five-minute cycle, to remove the surfactant from the record.

Next, you dry the record using the supplied optical-quality microfiber cloth—this takes less time than you might think, given PVC's inherent water-repellency and the microfiber cloth's absorptive qualities—then spray the record with a few shots of distilled water and dry it again. After that, you "polish" the grooves with the parastatic felt brush, then finish by spinning the record on your turntable, spraying a small amount of the surfactant on the (cleaned) goat-hair brush, and gently pulling that brush across both sides of the record. According to Kirmuss, this last step "inoculates" the record against the growth of fungus—something every veteran record buyer has seen, especially on records that have been in humid climates.

While Kirmuss's process is said to kill the fungus and prevent its further growth, in my experience it doesn't remove the fungus's visible after-effects: a cloudy white patch on the record surface.

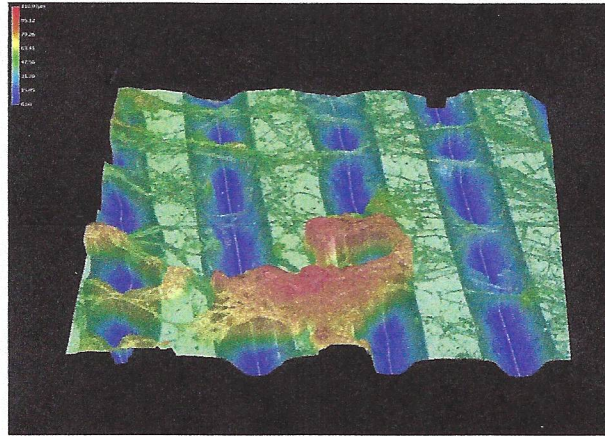
Obviously, this half-hour procedure is *not* a casual record-cleaning process to be used after returning from a garage sale with a nice haul!

According to Kirmuss, even though new records are assumed to be free from baked-in cleaning fluids, the heat and pressure of the pressing process can cause mold-release compound—a chemical added to the PVC to make records easier to remove from the stamper—to migrate to the record's surface. That's why even new records can produce white paste and may require the full cleaning regimen. At Munich High End 2018, Kirmuss demonstrated that using a new Monty

Alexander album I'd picked up at the show—but it took only three cycles before the white paste ceased to appear.

And for maintenance

As with any record-cleaning system, maintenance is key. I can't tell you how many homes and businesses I've visited where I've seen Audiodesksysteme Gläss Vinyl Cleaners with filthy, damp microfiber rollers that have gone from white to brown. (I could name names and ruin people!) That's *crazy!* Those machines are just spreading bacteria,



Above: Jackson Pollock's Scorpion Crossing a Blue Highway.

fungus, and dirt—I don't even ask how many records have been cleaned with the same vat of water and surfactant . . .

At least the water in the Audiodesksysteme cleaner is automatically filtered during each cleaning cycle—something the Kirmuss KA-RC-1 can't boast. That's not a problem as long as you change the water every dozen or so records and avoid putting truly filthy records into the machine without first removing the copious dirt by some other means⁵—and never reuse water that's been left in the machine overnight. Distilled water and small quantities of alcohol are cheap, though the thought of lugging home gallons of water can tempt some to reuse the same bath for too long a time.

Each time you empty the vat, you must clean it out using alcohol and distilled water. You must also clean, with tap water, the bottom of the motorized cover and, most critically, remove the foam record guides that line the "slits" into which you place the records. Clean them per Kirmuss's instructions, because the wet foam will absorb dirt and other contaminants. It's also critical to rinse the microfiber cloths (I bought

extras on Amazon), and—especially—the goat-hair brush. Fail to do these things and you will not get the desired results. Fail to brush your teeth and they'll rot and fall out—just saying!

M is for the man and the madness

Charles Kirmuss is a take-no-prisoners advocate for his system, and he is highly critical of other record-cleaning systems. According to him, wet-wash/vacuum-dry machines, whether their contact points are velvet-lined lips or a thread-cushioned nozzle, are no good:

They draw dirt into the grooves, he says, and no matter how clean you keep those velvet lips, they press that dirt into place. Fan drying is awful for records, Kirmuss contends, because it blows dirt and contaminants onto the record and dries in place the residues of surfactants and other fluids. The *only* effective means of drying a record, he says, is to do so physically, with the microfiber cloth.

Other cavitation machines are mostly no good, Kirmuss says. They operate at the wrong frequency, or their "spits" place the records too close together.

And according to Kirmuss, those that don't use surfactants—the KLaudio is one example—can't emulsify grease and fingerprints because cavitation alone isn't up to that job.

When Kirmuss first visited—shortly after I'd met him at AXPONA 2018—he claimed that the Audiodesksysteme machine was not cavitation-based at all: news to me! I did some research and am satisfied that the Audiodesksysteme Gläss Vinyl Cleaner does, in fact, use cavitation. Kirmuss, though, is adamant. Later, he contended that the Vinyl Cleaner's cavitation frequency is not high enough and, more critically, that the cavitation generator is incorrectly placed.

I've been using the Audiodesksysteme Gläss Vinyl Cleaner for *years*, as have thousands of other people. Early reliability issues aside, it cleans records, and does so better than any other type of machine I've tried and/or owned.

⁵ Precleaning can be done with any simple method: the Allsop Orbitrac, a discwasher brush (with fluid), or whatever. Just remember to clean those cleaners, too!

Does that mean it's the best? Not necessarily, but I see no reason to dump on it. The same is true of record-cleaning machines from VPI, Nitty Gritty, Clearaudio, Loricraft, Keith Monks, Oki-Noki, Pro-Ject, and others, including other cavitation-based machines. These are all useful record-cleaning machines.

In some of his early e-mails to me, Kirmuss made claims that eroded rather than fortified his credibility: the guy has been all over the map. In the months since, he has backed *some* of his claims with science—but others not so much. Kirmuss once claimed that the white paste was “sugar,” or a molecule related to sugar. He continues to call old 78s “shellacked records,” a term I've never before heard, and one that surely doesn't describe the vast majority of 78s made *entirely* of shellac.

And in another series of e-mails, Kirmuss told me that “LOVE” was one of the worst chemicals ever used on LPs, that it produced sonic degradation and was difficult to remove—difficult but not impossible, since, he claimed, his machine and regimen could remove it. I told him I'd never heard of “LOVE,” and that it must be extremely obscure. Eventually I learned that he'd meant LAST, the vinyl-preservation treatment co-developed in the 1970s by chemist Walter Davies and used by a great many collectors and institutions. My understanding of LAST, which I've used for decades without a single instance of noise or any other sonic alteration, is that it is not a coating and thus cannot be “removed.” Indeed, according to The LAST Factory, “LAST Record Preservative chemically enhances the molecular stability; . . . [it] affects the vinyl to a depth of about ten molecular layers and becomes part of the groove wall. There are no surface residues that can be picked up by the stylus.” Anyway, why pick a fight with LAST? All we need is LOVE!

The 7th M: Mikey likes it!

Let's just say Mr. Kirmuss and I have had a contentious relationship: I have been respectful, yet highly skeptical of claims, which often have a whiff of hucksterism about them. We've gone back and forth, bickering for more than



Kirmuss relaxes at home.

a year. The last thing (or should I say the “love” thing?) I want to do is damage my reputation recommending a product of dubious merit.

That's why I've withheld my recommendation of the KA-RC-1 Ultimate Ultrasonic Vinyl Restoration System for some time. But now that I've spent a great deal of time using it, testing it, and clearing away some of the hype, apparent misinformation, and mystifying instructions—that “sugar” business really bothered me, as did the early instructions that overlooked the need to clean the paste-polluted goat-hair brush—I wholeheartedly endorse the Kirmuss system as long as you follow the directions, which include remembering that, when the unit heats up beyond a certain point, you must *turn it off*. (This is now covered in the manual; the previous instructions said “stop using it,” which is not at all the same thing.) I endorse it because it works.

Examples?

I have an original U.K. pressing, on Track Records, of The Who's *Tommy* (2 LPs, Track 613 013/4, limited edition #16137), which I bought new in the fall of 1969 and have been playing constantly ever since—more than 50 years! I can never get enough of Keith Moon's drumming on this LP, or of how well it was recorded. (*Quadrophonia* was such a sonic disappointment.) The last time I played *Tommy*, I realized it had gotten noisy. Worse than that, it seemed to have lost its top end—and worse than *that*, the music seemed to have faded into the distance. “It's finally wearing out,” I told myself, sadly.

After the first dip into the Kirmuss vat, the record fairly *foamed* with pulled-up paste. It took five cycles to

reduce the foam enough that an application of the propylene glycol evaporated, leaving no paste behind. I followed the rest of the instructions and was left with a gleaming, shiny, like-new-looking record, even more brilliant than a similar record cleaned with the Audiodesksysteme Gläss Vinyl Cleaner. That's pretty stellar.

Best of all, when I played it—holy crap! The top end was fully restored, the backgrounds were superquiet, transients were sharpened, and the amount of inner

detail—particularly the microdynamic shifts in Pete Townsend's rhythm guitar strums—produced an almost new listening experience. That's not hype.

Then I tried two original “six-eye” copies of Miles Davis's *Kind of Blue* (Columbia CS 8163). The results were the same. Then an original UK pressing of *Abbey Road* (Apple PCS 7088). And then both of my copies of *The Beatles* (2 LPs, Apple PCS 7067/8). All of these records sounded very good prior to “restoration,” doubtlessly because I took good care of them and kept them clean using, in recent years, the Audiodesksysteme cleaner. Now their top ends sparkle as never before. I brought a 96/24 needle-drop file of *Abbey Road* to last February's Tampa Audio Expo and played side two for a roomful (60 people) who sat transfixed throughout. It sounded quieter, and more musically lustrous, than it had for years.

So yes, the Kirmuss KA-RC-1 Ultimate Ultrasonic Vinyl Restoration System works as promised—and it's reasonably priced. I enthusiastically recommend it—but I'm not getting rid of either my Audiodesksysteme Gläss Vinyl Cleaner or my Loricraft thread-drive wet-wash/vacuum-dry machine. Both do a damn good job, at least until it's time for a full restoration. I don't always have half an hour to clean a single record! ■

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