

“Bio-Diamond” Diamond Sharpening-Pastes and Chromox Finishing Paste

Ref. Bio-Diam 6 --Coarse-Grit 6 micron (Yellow colored)—for: heavy refining of edge direct from the hone; aggressive action or restoring.

Ref. Bio-Diam 3—Regular-Grit 3 micron (Green colored)—for: refining of edge direct from hone, intermediate action or restoring.

Ref. Bio-Diam 1—Fine-Grit 1 micron (Red colored)—for: regular use on razor’s edge.

Ref. Bio-Diam 0.25—Extra-fine-Grit 0.25 micron (Silver colored)—for: regular use and super-fine finishing on razor’s edge.

Ref. Chromox—Finishing-paste—green chromium oxide—recommended for use after diamond-paste stropping with grits finer than 0.50 microns.

Historical Perspective

Like other aspects of straight-razor use, razor-sharpening has benefited from modern processes and materials. The use of today’s Diamond Sharpening-Pastes in your razor-sharpening regimen can vastly improve both the quality of your razor’s cutting edge and the comfort and closeness of the shave.

Razor-sharpening pastes have been around for years. The most common pastes used a fine powder of iron oxide, chromium oxide or graphite as the cutting agent, suspended in a carrier; this was spread onto a leather or wood surface, used as a strop to finish the edge. A bundle of strops would hang in a corner of the barbershop, each dedicated to a different type or coarseness of sharpening-paste. The use of sharpening-pastes is similar to the use of hones: you begin with a coarser grit to accomplish the most work in the shortest time, moving on to progressively finer pastes to refine the edge, ending in a finely polished, mirror-like finish. Advances in metallurgy produced ever-harder steels, rendering ineffective the compounds used as cutting agents in the sharpening-pastes; they were actually softer than the blade they were expected to sharpen. Using such sharpening-paste made the blade duller, not sharper! All this changed with the development of diamond sharpening-pastes.

Diamonds are the hardest substance known to man—far harder than any steel yet developed. Industrial-grade diamonds, similar in hardness to gemstone-quality diamonds, are by-products of the diamond-mining industry. Their flaws, color inconsistencies, or other characteristics render them unsuitable for jewelry. Also, in the process of cutting and polishing gemstones, significant waste is produced. When all this is crushed to a fine powder the resulting particles acquire irregular cutting-edges. Being harder than any other substance, the particles hold those edges longer than any other material. This diamond powder does the actual work of sharpening.

However, all diamond compounds are not equal. The best are very carefully controlled in their manufacture, to assure consistency in the size of the actual particles. For example, a compound classified as “one micron,” though it may have particles *smaller*, should contain no diamond particles *larger*, than one micron. This is important, especially in a close-tolerance application such as producing a highly refined razor edge. **All the diamond particles used in our “Bio-Diamond” sharpening-pastes are very carefully sorted to make sure that particles in each mix are exactly the given grade size.**

Another differentiation between compounds is the carrier paste. In an industrial polishing application, an oil-based carrier, (typically a petrochemical) may be acceptable. In sharpening a straight razor, a water-based paste is preferable. This will easily rinse away after sharpening, lessening the risk of any skin irritation or infection. **Our “Bio-Diamond” pastes are water-based, perfect for use in the sharpening of razors; they have no harmful chemical additives and are even “food-safe” if accidentally ingested.**

Important : a razor edge can actually *be too sharp*, the result of over-sharpening with diamond-pastes. Such an edge will catch on every surface imperfection in the skin, causing irritation and razor-burn. For a close yet comfortable shave, the razor’s edge should glide over the skin, barely touching, catching only on the base of the hairs to be cut. Generally, using a diamond compound as fine as, or finer than, 0.5 micron can result in an over-sharpened edge. In most cases, one micron or smaller diamond sharpening-pastes are more than capable of sharpening a razor that has become dull through normal use. By starting with an even coarser grit—in the 6 micron to 1 micron range, depending on how dull the beginning edge is, you can refine the “not quite shave-ready” edge typically found on a new, out-of-the box razor. **Before sharpening a new razor, first try shaving with it.** If it pulls, drags, or is in any way uncomfortable, sharpening is required. By this test, you learn how much sharpening to do. Generally, 20 round-trips on each side of the diamond-pasted strop will get it right. If, after sharpening and again trying to shave, it needs more work, repeat the process. You may have heard of many different ways to test the sharpness of a razor—the hanging-hair test, the standing-hair test, shaving your forearm, etc.--but **the only true test is actually shaving with it.**

In most cases, a good paddle-strop or two (examples, our 4-sided paddle strop (ref. 444), or one or more 2-sided paddle strops (examples, ref. 259 or 276) and several different-grit diamond sharpening compounds (we recommend Bio-Diam 1, followed by Bio-Diam 0.25) will be all that are needed to maintain a fleet of daily shavers. What diamond paste will not do alone is establish a basic working edge on a razor that hasn’t seen a strop or hone in fifty years, or remove a ding or chip (the result of dropping the razor, or some other accident.) For such repair, only a hone will do. But, once a hone has done the heavy work, diamond sharpening-pastes (this time, Bio-Diam 6 and 3, followed by Bio-Diam 1 and Bio-Diam 0.25) will refine the basic edge quicker and in much more controlled manner than a hone can.

Use of Bio-Diamond sharpening paste:

The best tool to use with your diamond sharpening-pastes, as we have said, is a paddle-strop . A surface of soft wood (such as balsa) can be chosen, but we prefer leather. In either case, the surface must be sufficiently rough or grainy to hold the paste. With too smooth or hard a surface, the paste will simply be wiped off with each pass of the blade--not only wasteful and expensive, but ineffective. **The smoothest leather surface (of your paddle- or hanging strop) should be reserved for either Chromox-paste application or use of an un-pasted strop in a final, pre-shave touch-up.** The paste should be applied to the surface in very small amounts: with our Bio-Diamond special push-drop dispenser applicator. .

Dispenser procedure: Shake the dispenser gently to mix its contents. Remove the cap, then press the membrane at the base of the unit to eject drops of the compound. [Initially, you might have to press several times to get the flow moving.] **10-12 drops will usually suffice for a first application.** Any random compound emitted at start or end of the emission should be wiped away with the fingertips or a paper towel and deposited on the strop.

For a typical-sized paddle-strop, these 10-12 drops should be evenly spaced along the length of the strop. **The dots should be thoroughly worked into the surface, using the fingertips or the heel of the hand.** The more time spent on this step, the more effective the sharpening action will be. With successive use, as the surface becomes more built-up with abrasives, the effectiveness of the sharpening action will be improved. So, do *not* clean off the surface after use. When the effectiveness seems to have diminished, simply add a small amount of fresh paste (several dots will usually do), work it in, and continue.

As with all sharpening pastes, a surface coated with a given grit of paste should be dedicated to that grit alone. While it is possible to *increase* the grit size, you cannot *decrease* it. A surface once used for .25 micron may subsequently be used with 1.0 micron, but you cannot do the reverse. **Diamond-paste sharpening is similar to the use of other multi-paste systems and to the use of hones; that is, a coarser grade of paste is used for a dull blade, followed by finer and finer grades of paste until a properly refined edge is reached.**

To maintain a fleet of regularly used razors, typically a two-step process, beginning with 1.0 micron, followed by .25 micron (and perhaps, to smooth the edge, a final application of Chromox paste—see further on) will achieve a perfectly smooth edge. To prevent cross-contamination, completely wipe off the blade when moving from coarser grit to finer, and again before moving on to your Chromox-pasted strop and/or further, to an un-pasted, finishing strop.

The motion used on the diamond-pasted surface is identical to that employed with any other pasted paddle-strop or hanging-strop—working from the blade’s heel to the point as you travel up or down the surface, *leading* with the razor’s back, and applying no pressure—using only the weight of the razor to maintain constant contact between the razor edge and the pasted surface. The typical “X pattern” used with traditional pastes and stropping is to be recommended. After having sharpened your razor, you should finish on the Chromox-pasted strop and/or an un-pasted leather strop. Your razor is now ready to use. Routine use of the un-pasted leather, pre-shave stropping may be resumed for successive daily shaves.

When needed (**most probably every 2-3 weeks**), the multi-step Bio-Diam strop procedure, should be all that is necessary to keep your razors in perfect shaving condition.

Use of Chromox finishing paste:

Chromium oxide edge-smoothing compound, when properly used on a paddle or hanging-strop, smoothes or takes the “bite” out of a very sharp, aggressive edge.

Over-use will decrease the closeness of the shave; proper use will give you the smoothest edge that you've ever experienced, with no loss of shave closeness. Our **ref. Chromox** paste is perfect for use after sharpening with extra-fine diamond grits 0.50 and 0.25 microns (and is also suitable for use after super-fine hones, such as Shapton 16,000 or 30,000 grits, Chinese 12,000 grits, or even Belgian Coticule stones.) It is also sometimes of use after finishing with extremely fine non-diamond stropping-pastes.

It is recommended to use Chromox paste on either a fine leather paddle-strop (example, the finest side of our ref. 444 paddle-strop, or on the fine leather side either our ref. 259, Voystrop-N or M, or 276 paddle-strops) or **on a fine leather hanging-strop.**

Important—the chromium oxide paste *must fill the pores* in your strop; you **don't** want it to coat the surface. **Before first use, with your fingers, rub in a generous amount of paste to completely cover the surface and fill all voids.** Then, with a paper towel, *wipe all the excess paste off the surface.* When you are getting only a trace of lapping paste on your towel, your strop is ready for use. **Before applying the chromium oxide paste, you should always stir it well,** to avoid settling of the chromium oxide particles in the mixture. We recommend that you stir with a small piece of wood and then wipe this piece on the strop to be covered, so as to avoid wastage.

Some experimentation will be required to get the results you prefer. We suggest starting with ten back-and-forth passes in an “X” pattern on the strop as a first test, and then more if necessary. **Remember, the only true test of the blade edge is shaving with it!**

Suggested sharpening schedule (see above for stropping techniques).

For a blade needing restoration:

Following use of an appropriate hone/or hones we recommend progressive use of the following: Bio-Diam 6 micron, Bio-Diam 3 micron, Bio-Diam 1 micron, Bio-Diam 0.25 micron, Chromox and finally, an unpasted strop

For an out-of-the-box razor, not yet shave-ready:

We recommend progressive use of the following: Bio-Diam 6 micron, Bio-Diam 3 micron, Bio-Diam 1 micron, Bio-Diam 0.25 micron, Chromox and finally, an unpasted strop

For a razor already in regular use:

We recommend, **once every 2 or 3 weeks,** progressive use of the following: Bio-Diam 1 micron, Bio-Diam 0.25 micron, Chromox and finally, an unpasted strop

For daily upkeep:

We recommend pre-shave use of either a strop coated with Thiers-Issard non-diamond ref. 260 finishing paste followed by an unpasted strop or, if desired, an unpasted strop alone.