

Electrolyte Chart/ Knowledge Base

All information refers to a setup with TUS machine, TUS stencil, TUS electrolyte. No obligation of any kind. Please refer to TUS before ordering.

Can't find the information you need? We have more! Contact us at the number/ E-Mail above.

| Item | Etch | Electrolyte/Power/Practice |
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| <p>"NO STAIN" Electrolytes help minimize the tendency to stain. <u>primarily for Stainless Steel</u></p> <p><u>primarily for Carbon/Tool Steels</u></p> | <p>dark</p> <p>dark</p> | <p>SUITABILITY OF AN ELECTROLYTE FOR SPECIFIC APPLICATIONS MUST BE ESTABLISHED BEFORE USE.</p> <p>"NO STAIN" EX-RS1, 12-24VAC, 1-2 sec. cycles EX-61, 12-24VAC, 1-2 sec. cycles</p> <p>"NO STAIN" EX-RC1, 12-24VAC, 1-2 sec. cycles</p> |
| Aluminum | <p>dark gray/ black</p> <p>deep etch</p> | <p>EX-10, 24VDC,3-4sec. Dark gray; black 2-3 hits, 1.5 sec; EX-9B, 24VDC, 3 sec., EX-21, 24VAC, 2-3 sec. EX-42, 24VDC, 2sec.</p> <p>EX-4, 24VDC, AB, 2-3 sec., prox 1/2 thou. per hit</p> |
| Black/Blue Oxide | <p>light gray white</p> <p>bright metallic</p> | <p>EX-21 (/22/23/25), 12-24VAC, 1.5-3 sec., 2-4 hits, water pad rub, oil and dry wipe EX-D20, 24VDC,1-2sec., 2-4 hits, water pad rub, oil and dry wipe</p> |
| Brass (see copper/brass) | | |
| Carbide Tools | <p>black</p> <p>black</p> <p>darkgrey</p> | <p>EX-3, EX-4, 24VAC,2-4sec EX-12, 12-24VAC, 1.5 sec, 2 hits EX-21, 12-24VAC, 2-3 sec</p> |
| Cd plated bearings | black | EX-61, 12VAC, 1.5 sec. |
| Chrome Plate Steel, bright and satin | <p>black</p> <p>deep shallow/dark</p> | <p>EX-9B, 12-24VAC, 1-2 sec, AB, 1-2hits EX-10, 12-24VAC, 1-2 sec.</p> <p>EX-9B, 25VAC, 2x 5sec</p> |
| Chrome plated brass | <p>deep etch into base</p> <p>dark/black etch</p> | <p>EX-9B, 24VDC, 2 sec, 1-4hits</p> <p>(EX-9B,24VAC,3sec,2hits)</p> |
| Chromated (Cadmium) Steel | dark | <p>EX-60, 24VAC, 2 sec. EX-10, 12-24 VAC, 2-4 sec.</p> |
| Chromated (Zinc) Steel | dark | EX-D10, 24 VAC, 2 sec |
| Cobalt Alloy (L605) | gray frosted shallow depth etch | EX-10, 24 VAC, 3sec, 2hits |
| 50% Co alloy, Fansteel | dark/black | EX-9B , EX-21, 24VAC, 1.5-2.5 sec, AB, |

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| Copper / Brass | dark/black deep etch | EX-61, 12/24VAC, 1.5-2 sec EX-21, 24VDC, 2x3sec. |
| Brass plated (over Ni flash on hardened C-steel) | dark grey gray black | EX-61, 24VAC, 1sec, AB EX-12, 24VAC, 1sec, AB |
| Brass, polished | shallow depth etch "Copper Red" etch | EX-60, 24VDC, 3sec., 2 hits (.0005-.001") EX-12A, 12VAC, 3sec, 1hit |
| Al Bronze coating 92 % Cu – 8% Al | Dark / black | EX-60, 12 VAC, 1.5 sec, 1 hit, AB, water rinse, hot air dry , pitch black |
| Bronze | Black Deep etch .002-.003 | EX-9B, 12VAC, 2 sec., 2 hits, pitch black EX-21, 24 VDC, 2 sec, 2-3hits, AB |
| CopperGraphite CopperTungsten | black | EX-21, 24VDC, 2sec, 1-2 passes, excellent black |
| Deep Etch | | see also stainless steel and aluminum |
| .005 - over .008" Electrodes, Graphite, CopperGraphite, CopperTungsten | dark background black | EX-D40A, 24VDC, repetitive 1-2sec passes, 1-3 min EX-21, 24VDC, 2sec, 1-2 passes, excellent black |
| Gold plate | black Shallow depth/clear | EX-10, 12-24VAC, 1-2 sec, one or more hits EX-10, 12-24VDC, 1-2 sec, one or more hits |
| Graphite | black | EX-21, 24VDC, 2sec, 1-2 hits, excellent black |
| Hastelloy X, | black / dark | EX-31, 24VAC, 1.5 sec, AB, 1-3 hits |
| Alloy L605 | shallow depth -deep etch, light gray | EX-9B, 24VDC, 1.5-2 sec, AB, 1-2 hits |
| Ni plate, electroless, crs | black | EX-10, 15B, 22, 12-24VAC, 1.5-3 sec |
| Ni plate, scissors | black | EX-9B, 12 VAC, 1 hit, 1.5 sec |
| Ni plate, dull on brass | black clear shallow depth | EX-9B, 24 VAC, 1 hit, 2sec EX-9B, 24 VDC, 1 hit, 2sec |
| Ni plate bright on brass | black (strong) | EX-61, 12 VAC, 3-4 hits, AB, 1.25 sec, |
| NiTinol, Ni-Ti shape memory alloy | Black | EX-9B, 12 VAC, 1.5 – 3 sec., 1 or more hits or roll |
| Silver Plate | Dark | EX-10, 12VAC, 2-4 sec; over time fades to gray, can be rubbed off to frosted mark |
| Silverplate over Stainless Steel | Dark | EX-9B, 12VAC, multiple passes, good dark, etch into stainless to minimize rub off, 9B somewhat darker than EX-10 |
| stainless 303, blackened | surface etch deep etch | EX-D20, 24VDC, 2sec, AB, 1 hit, nice light white marks EX-D20, 24VDC, 2sec, AB, multiple hits, nice deep gray white marks (prox 1/4-1/2thou depth per hit) |
| stainless 420/440 | deep etch | EX-D20, 24VDC prox 1/2 thou per 1.5-2 sec cycle. alternatively D10/D30 |
| stainless steel 410,420/440/300 | dark etch, decorative | EX-9B , 12-24 VAC, AB, 1-2 sec, 1-2 hits) |
| see also "deep etch" above | deep etch | EX-D20 ; 24VDC, 1.5-2.5 sec, AB, multiple hits (prox. 1/3-1/2 thou/ hit); |
| Titanium | dark | EX-25, 12VAC, 3sec EX-10, 24 VAC, ¼ sec or less (very fast) |
| TiN (black) Finish Stainless S | white gray/frosted metallic look | EX-D20 , 24VDC, 1.2 sec, 2-3 hits, AB |
| | light gray white | EX-D10, 24VDC, 2sec, 2hits, AB |

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| Ti-Nitrided steel (gold) | black | EX-D20, 12VAC, 1.8 sec, 2-3 hits, AB EX-10, EX-12 (for "AB"), EX-12A (for stationary), 24VAC, 1.5-2 sec, 1-3 hits, AB better, stationary OK for fine lines |
| Sn plate over bronze | black | EX-31, 24VAC, 1.5 sec |
| Zn coated steel | black | EX-33, 12VAC, 2sec |
| Zn cast parts | Black | EX-61, 12/24 VAC, 1.5-2 sec EX-10. 24 VAC, 2 x 2 sec. sharp but weaker |