Oil on stock diamond stones... your thoughts?

Posted by razoredgeknives - 20 Jun 2012 23:13

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so I just noticed that a few sets of my stock diamond stones (400/600, 800/1000) had rust spots on them! didn't think I put them away wet since I always lay them out on a towel to air dry. anyway, i was just wondering what you guys think about putting a very little amount of oil on each stone and rubbing it in? I'm not talking about an abundance of oil like on normal stones... just enough to keep it from rusting. and just to let you know, I already did this to the listed stones (with weapon shield clp oil) ... they look fine but ill try to report back. I. normally just jump right into stuff and it costs me later but oh well lol.

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Re: Oil on stock diamond stones... your thoughts?

Posted by BassLakeDan - 21 Jun 2012 00:18

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razoredgeknives wrote:

so I just noticed ... .rust spots ...didn't .. put them away wet .. oil.. just enough to keep it from rusting. .

Oh boy, nothing better than a little chemistry! here we go: rust is iron Oxide, the result of a reduction reaction which involves oxygen. So you have two choice here to prevent that reaction. first (and the best) is to take away the source of the oxygen which may sneak up around you without you realizing it. Look to eliminate powerful oxidizers that may be around your storage or work environment. Things that contain or outgas chlorine are always suspect, common household cleaning agents are always suspect here. Common garden fertilizers contain nitrates, do you sharpen or store the plates in an out building or near a storage shed that contains such items i.e. ammonium or potassium nitrates? Also look for any compounds that contain perchlorates, sometimes used in fabric color fast bleach formulas like Oxy-Clean. Water can release oxygen thru hydrolysis but if you dry the plates this is unlikely to be the cause. Do store the plates in a room with less than 40% RH humidity, anything over that is suspect.

After you track down any sources of oxygen or chemicals that are either powerful or mild oxidizers in your work or storage area then: Your second best approach is to use oxygen barrier coatings. The oil you mention is this type of strategy, but there is better chemistry available to you. VCI or Vapor corrosion inhibitors are an inexpensive way to win the battle. There is a whole slew of products in this arena. Just google for VCI paper and you will get many vendors. Here is a link to try

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Re: Oil on stock diamond stones... your thoughts?

Posted by mark76 - 21 Jun 2012 04:42

BassLakeDan wrote:

Oh boy, nothing better than a little chemistry! here we go: rust is iron Oxide

So what is the iron in here? Is it from the knives you sharpened? That shouldn't be too bad. Is there any other source of iron in the stones?

Thanks for the link to the VCI paper. Interesting stuff. I'd never heard of it.

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Re: Oil on stock diamond stones... your thoughts?
Posted by StevenPinson - 21 Jun 2012 12:29

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I would just clean them with a little 91% ISO Alcohol and throw them in a box with a desiccant pack.

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Re: Oil on stock diamond stones... your thoughts?
Posted by razoredgeknives - 21 Jun 2012 19:22

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those are all good points... but i am storing them where i always have... but now all of a sudden they have some rust spots on them. i am wondering if i put them away damp... thanks for the VCI paper link Dan. I know I could get some silica gel packets and throw them in there... but that would be a pain. I will see how this drop of oil works out I guess... since I have it on hand already! hehe just checked them today... they look good. i just wonder if the oil will have any long term effect if i am cleaning them with hot water and soap each time before the drop of oil.

dan, what do you do w/ the VCI paper... just wrap your stones in them for a time or two for the molecular change to adhere to the surface of the metal?

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Re: Oil on stock diamond stones... your thoughts?
Posted by BassLakeDan - 21 Jun 2012 20:49

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mark76 wrote:

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So what is the iron in here? ...

yes the steel is from the debris of sharpening but also,the base material of the diamond plates is steel, all of which is an alloy of iron

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Re: Oil on stock diamond stones... your thoughts?

Posted by BassLakeDan - 21 Jun 2012 20:52

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razoredgeknives wrote:

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dan, what do you do w/ the VCI paper... just wrap your stones in them for a time or two for the molecular change to adhere to the surface of the metal?

you can certainly do that,.. or I think many vendors sell the VCI in a spray that you can apply directly. That might work better for you in this application. It is all cheap enough stuff to give various approaches a try.

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Re: Oil on stock diamond stones... your thoughts?

Posted by BassLakeDan - 21 Jun 2012 21:09

StevenPinson wrote:

I would just clean them with a little 91% ISO Alcohol and throw them in a box with a desiccant pack.

But, anyway, not trying to out chemistry you here, but the problem with that is that water is 100% soluble in alcohols (well except polyvinylalcohol anyhow..) It is also hydroscopic as hell so it just sucks water out of the air. That is why the bottle you have of the ISO you mention is labeled as 91%. It is 91% alcohol and 8% water. The alcohol has a very high vapor pressure but the water does not, so after a short time guess what? The Alcohol is long gone but the water remains. You only get 100% under lab conditions, and then only for a short time..

Anyway the VCI is going to a be a great fix for the issue especially if the storage periods are long and unsupervised. Say for instance, you pack away you WEP kit for a while, take a vacation, Winter over in Mexico, like it so much you hang out for a month or two longer than you planned. During that time your kit is sitting in you garage workroom where the RH is 100% during the season.. The VCI prevents the nasty that might be, otherwise, waiting for you upon your return !

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Re: Oil on stock diamond stones... your thoughts?
Posted by mark76 - 22 Jun 2012 05:15

BassLakeDan wrote:

mark76 wrote:

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So what is the iron in here? ...

yes the steel is from the debris of sharpening but also,the base material of the diamond plates is steel, all of which is an alloy of iron

Have you got any idea what the base of the diamond plates is made of? I usually use a liberal amount of water to clean them, but that might not be the best idea...

And regarding the iron from te sharpening debris, wouldn't it be better to let it rust away? The debris just fills the space between the diamonds, which makes the plates less effective, I'd guess.

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Re: Oil on stock diamond stones... your thoughts?
Posted by RalphHoneycutt - 22 Jun 2012 10:31

What do you think about using a product such as Balistol which emulsifies with water and has multiple sportsman applications? I have not yet tried it. I was looking for a chemistry lesson on this before I try it. I use it on firearms as a solvent/lubricant. The Ballistol odor may result in the user being exiled from the house to the garage as it smells like dirty socks.

Ralph

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