

Zero Friction Cycling



Lubricant On Test : Silca Super Secret Drip

Cost: \$54.95 Aud from Zero Friction Cycling & others

Size – 120ml



Photo :

Manufacturers Description on package;

Ultra fast water-proof wax + Nano-scale tungsten disulphide

Directions on package;

Nil

Extra information from Manufacturer website

PLEASE NOTE: We have updated our recommendations for drying time of SuperSecret Chain Lube to guarantee optimal performance!! Please see Graph and Note Below!!

What is it?

SILCA Super Secret Chain Lube brings all of the super speed and silent running of a hot-melt wax-dipped chain to a drip applied wax (all of the benefits, none of the hassle!). Secret Chain lube also utilizes the world's fastest, most lubricious additive, nano-scale Tungsten Di-Sulfide. NanoPlatelet WS2 has less than 1/3 the dynamic coefficient of friction of PTFE and 1/4 that of Molybdenum Disulfide (MoS2)

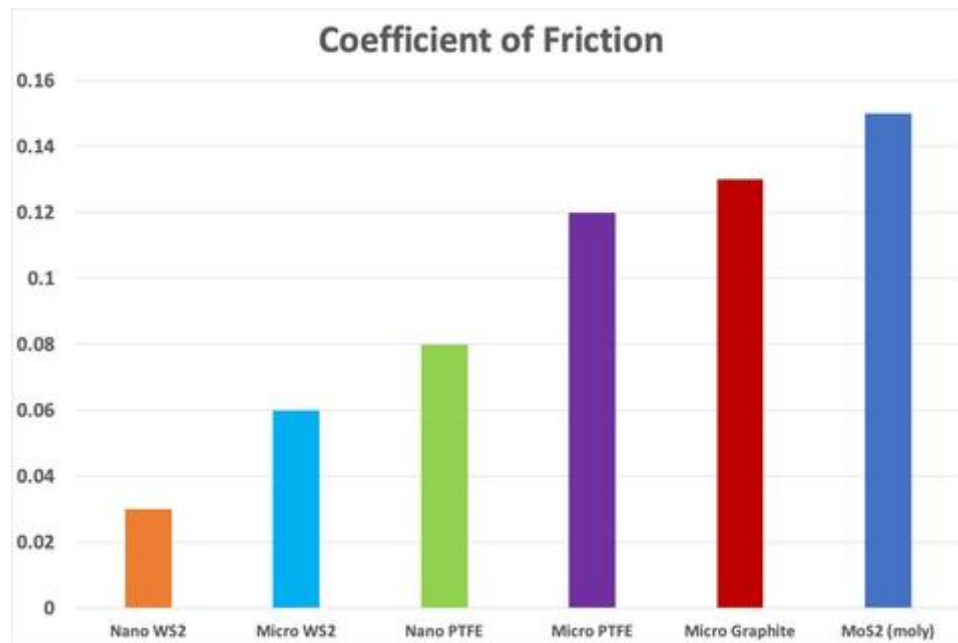
Who's it for?

The cyclist looking to maximize performance through friction reduction, or the cyclist who loves a silent running bicycle.

Any extra detailed information re application and usage from website;

WHY WE DESIGNED IT:

SILCA Super Secret Chain lube started out as a project to develop the fastest Hot-Melt wax lubricant available more than a year ago. Josh has been recommending Hot Melt Wax and helping Pro cyclists and triathletes wax chains for years and wanted to bring his lubricant formula to our customers, the challenge was how to consistently melt, dip and agitate the chain across different crockpot designs and temperatures. The project took a fascinating turn from the world of IndyCar when josh was introduced to a group that had developed a technology to put micro-scale wax powders into a solution that was quick drying and forms a coating that is indiscernible from hot melt dipping. The combination of air-drying liquid wax and Tungsten Disulfide would quickly prove to beat all currently available hot melt waxes in friction testing while being much faster and easier to apply.



THE ENVIRONMENT:

Best of all perhaps is that this formula would prove to be very environmentally friendly, utilizing 4 different types of wax, nano platelets of WS2 (Tungsten Disulfide), and mild alcohol to act as a carrier. This same alcohol is used in the SILCA Gear Wipes, making them a perfect product to clean and remove Secret Chain Lube.

SPECIFICATIONS:

- 4 oz. and 8 oz. bottles with the precision applicator tip for dripping on your chain or 16 oz. jar with 12 oz. lube (leaving room for your chain) for dipping the chain
- The chain should be VERY clean and dry before applying ([CyclingTips has an Awesome Chain Cleaning Guide HERE](#))
- Apply according to video and let dry for AT LEAST 45 Minutes! We recommend using AFTER your ride so it's ready for next time!
- NOTE: Over time the WS2 will begin to settle to the bottom of the bottle, shake well before using!

Detailed Application instructions;

*(**NOTE FROM ZFC, this level of information is much greater, and much better than normal. Many other lubricants would have better customer experience if they followed similar path – it can be common for mfg's marketing department to get worried and want instructions to be as simple as possible, but for many lubes skimping on chain prep and application – especially for initial application – can easily lead to a poor outcome – ie one applies over factory grease / poorly cleaned chain etc)*

FIRST: CLEAN your Chain

Method 1: On-bike cleaning

1. Use a degreaser and brush and begin working the degreaser into the chain links

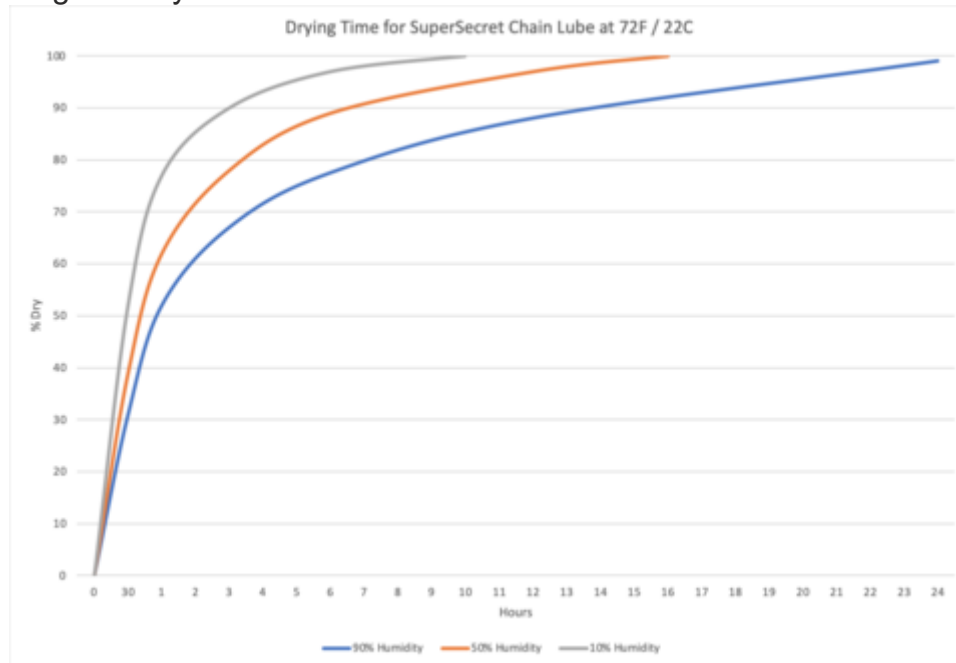
Here is a link to the degreaser we recommend. <https://amzn.to/3eu84E0>

2. We recommend 6-8 revolutions of the chain, scrubbing all sides of the chain with the brush to work the degreaser into the links and rollers
3. Hose the chain directly just in front of the rear derailleur pulley. DO NOT DIRECT PRESSURE onto cassette, hub/axle or BB areas
4. With clean brush and strong dish soap/water mixture (we like ~1 tablespoon Dawn in ~2 cups water) work through the chain again, scrubbing all sides and trying to drive out any remaining dirt as well as any trapped solvent
5. Direct spray rinse the chain again
6. Dry chain with towel/paper towels and allow to air dry in sun for at least 30 minutes OR (preferred) Direct Blow with high-pressure air to drive out remaining liquids and particulates

APPLYING THE LUBE (NOTE UPDATE!)

1. Be sure to have chain line relatively straight (53/15 or so)
2. Shake bottle well and open tip halfway
3. Begin applying drip lube to top of rollers while pedalling backward. Be sure to apply at least 1 drop per roller and no more than 2 drops per roller while continuing to backpedal.
4. Use fingers on top-bottom of chain to work the lube into rollers while back pedalling at least 3-4 revolutions.
5. Pedal forward shifting all the way to top of the cassette, pedal for at least 3-4 revolutions. The extreme chain angle opens gaps between plates to allow the lube to better work into the chain. Continue pedalling, shifting through all gears on the rear cassette at least once.
6. Stop pedalling and allow Secret Chain Lube to dry for minimum 2 hours, test results show that lube is fully hardened in 24 hours. ZeroFrictionCycling found SSCL to be best dry lube EVER Tested after 8 hours drying, but would be EVEN BETTER after 24 hours!!
7. SILCA Gear Wipes may be used to remove any excess lube from chainrings if you desire a cleaner look.

Note: Temperature and Humidity will affect drying time of SSCL, and the dryer it is when you ride it, the longer it will last. Drying time will also be affected by temperature, lube will dry faster in warmer temperatures and at lower humidity, and lube will take longer to dry in cold or more humid conditions. We recommend 24 hours as the optimal drying time.



Link to application video instructions here - <https://silca.cc/products/silca-super-secret-chain-lube>

Outright Efficiency rating: - **TBA – Silca have been conducting a lot of in house testing but outright efficiency testing is extremely tricky and I believe at time of writing testing processes are still being bedded in – I don't have numbers to share but I understand the numbers to be top end of town competitive.

Here is a good time to do a quick reminder re the ZFC testing process – the ZFC test protocol has an initial clean block of 1000km and 2 x re-lubes to assess for initial penetration issues, a 1000km block (all blocks are 1000km) where abrasive dry contamination is added at 7 points throughout the block in between re-lubes to assess dry contamination resistance, and then block 3 moves back to clean block – no contamination added to give lubes a chance to “clean as they lube” - a very common claim, block 4 is “wet contamination block” and has 7 points of water + abrasive contamination added in between re-lubes, Block 5 moves back to a clean block again to see if lubricant is able to clear (note many lubricants do not make it past block 4 as hit maximum wear rate limit). Block 6 is an extreme contamination block – it is same as block 4 except, the amount of water is doubled, the amount of abrasive contamination is doubled, and the number of times this is applied is doubled – so it is a very extreme test.

Chains are checked measured prior to testing and give a net 0.5% (recommended replacement mark) wear allowance from that measure, once chain exceeds that wear limit, test is stopped.

The ZFC test protocol has a number of key advantages of lab based outright efficiency testing as it assesses via wear rate correlation any initial penetration issues (ie a 19 or 20% wear rate in clean block one shows a clear initial penetration issue, block one should have very low wear for a clean, well lubricated chain that has low friction coating and wear protection treatments such as chromium plating on pins intact). Subsequent blocks assess a lubricant's ability to resist dry

dust contamination or absorb all particles and become very abrasive. The Wet contamination block assess lubricants performance in harsh wet conditions, and the alternation clean blocks assess lubricants ability to self clean / flush clean.

However, it is fairly blunt test, it cannot provide an efficiency loss number. It is theoretically possible for a lubricant to demonstrate a low wear rate but have a high efficiency loss due to being very viscous and so have high stiction and viscous friction losses (a bit like heavy duty grease in a bearing vs tt grease). However it is not possible to have a high rate of wear and be low friction.

If hardened steel parts of a chain are being abraded through at a prodigious rate, that just flat out takes friction.

For lubricants that are a “chain coating” type lubricant – which is fast becoming the number one type of lube release, unfortunately as we do not yet have a reliable independent outright efficiency test facility – at this time we have to rely on what we know about lubes + wear rate results. All the information tells us at this time that chain coating type lubricants typically have very low stiction and viscous friction, and so if it has an accompanying very low wear rate – it is highly likely the outright efficiency results will be at the competitive end of the table.

As such ZFC test protocol and wear rate correlation is often used as a back check re mfg claims, and the overall protocol provides a much deeper picture of lubricants performance in a variety of use applications vs an outright efficiency number from a clean lab test. However where possible when I have a reliable lab test number, it will be included in my detail reviews.

Viscosity: Very thin and light at room temperature.

Main Test stops when net chain wear reaches 0.5mm+ NET WEAR

Silca Super Secret Drip Main Test Results

Block (each 1000km)	Wear measure (mm)	Inc. On previous measure	% Wear for block (0.5mm=100%)	% Wear rate per 100km	Comments / Observations
0 – Initial check measure	0.101	n/a	n/a	n/a	Shimano chains usually measure 0.1 to 0.15mm from new.
1 – No contamination	0.116	0.014	2.9%	0.29%	This is actually quite ground breaking – to date the achilles heel of wax emulsion lubricants has been initial penetration. This is a major problem with squirt, Smoove, even tru tension tungsten all weather. Another recent high profile super expensive lube (ab graphene) also stipulate that first application MUST BE IMMERSIVE. This initial penetration issue has made wax emulsion lubes somewhat tough to live with if you ride in wet weather frequently as post wet ride chains really need to be properly solvent flush cleaned, and then one has a decently fatty job to try to negate initial penetration issue or suffer high wear rates (and high friction). Having a wax emulsion lubricant with zero initial penetration issues is quite ground breaking, and extremely important re being able to perform proper periodic cleaning maintenance to maintain a very low friction / low wear rate chain (which is responsible for lifespan of your drive train components). At the time of writing this is the lowest block 1 wear rate of any drip lube tested. The average block 1 wear rate recorded for all lubes tested to date is 16.3%.

2 – Dry contamination	0.139	0.023	4.6%	0.46%	We have a second record breaking result here – this is at the time of writing the lowest dry contamination wear rate result recorded to date – period. This demonstrates that extremely little abrasive dust contamination was able to penetrate nor does it stick to and become absorbed by any excess lubricant on surface of the chain. This results makes Silca SS Lube an outstanding choice especially for gravel riding / mtb etc. The average wear rate in block 2 is 31%
3 – No added contamination	0.137	-0.002	-0.03%	n/a	Basically zero wear recorded / within tolerance of measuring accuracy for zero change in wear mark. This backs up block 2 result, whatever tiny amount of dust penetrated in block 2 was dealt with via subsequent applications of lubricant. This only happens if the amount of contamination to be dealt with is extremely small, typically if block 2 wear rate is poor, the contamination that penetrated / becomes part of the lubricant continues to wreak some havoc in block 3. The average wear rate for block 3 is 20.4%
4 – Wet contamination	0.321	0.184	36.9%	3.69%	Ok so a bit of a jump here which has been discussed with Josh Poertner, and in conjunction with customer feedback from wet countries as well as their own continued testing, Silca have updated the set time required for the lubricant overall, and this is especially important for pre-wet any wet rides. The test was conducted under the original set time protocols (I gave a minimum 8 hour set time), however it appears this is insufficient set time and lubricant was impacted by washed away. I am not sure when i will have time to properly re-test – what I would say is based on known test results and updated information from Silca at this time, is a) Give chains AT LEAST 24 hours set time pre wet rides, 48hours is even better, and b) do not push single treatment lifespan in the wet. If you have a very long wet ride ahead of you, you may wish to consider Silca Hot Melt wax, Mspeedwax, Tru-Tension Tungsten all weather, absoluteBlack Graphene, Smoove. The first 3 options play better together mixing and matching vs the last two options. Note some of the options mentioned above didn't exactly smash this block result either due to build up of contamination that water transports in that

					is not cleared, however more from field testing we know that in a single application in wet conditions the above will last longer, reports have come back with short lifespans for SS lube in wet especially if set time is low. The average wear rate for block 4 is 31.7% so it is not miles off the average, and note many poor lubricants were already well past wear allowance before even reaching block 4 (or exceeded wear allowance quite quickly once hitting block 4) – so we need to take the result in perspective of the difficulty of test block as well as field test information and feedback.
5 – No added contamination	0.469	0.147	29.4%	2.94%	Again this shows that once contamination is in, it is hard to clear. Wax emulsion / chain coating type lubricants don't really have any ability to flush clean chain as what contamination is brought in by water and pressed into set lube is effectively land locked. Re lubing improves ratio of lubricant to contamination, and over time the contamination is ground down finer as its dust vs steel, but we see almost every time that post wet rides unless YOU remove contamination will a full solvent flush clean to reset, or do a hot melt re-wax, your next rides in the sunshine are similar to if you were still riding in the wet.

Extreme Contamination Block

Start wear measure	500km measure	700km or end of test measure & km	% Wear for block (0.5mm=100%)	% wear rate per 100km	Comments / Observations
6 – Extreme Contamination	n/a	0.699	46%	4.6%	Stopped test as total wear at 5,700km mark now at 119%. As per wet block 4 SS lube did find this block tough, will be interesting to see difference if I get to re-test with minimum 24hr set time between re-lubes, however this greatly lengthens time to test, and the test list is long...

Single Application Longevity test (Chain Cleaned Prior to test – no added contamination – Cumulative wear checked every 250km) – allowed extra 0.25mm on top of end of block 1-6 wear measure

Start wear measure	% wear 250km	% wear 500km	% wear 750km	% wear 1000km	% Wear 1250km	% wear 1500km	Comments / Observations
							Not tested at this time – This will be TBA – based on existing test results I would be confident that friction and wear will very low for circa 300km, similar to immersive wax, and that some wear would start to show by 500km check. I haven't seen specific claims from Silca re treatment longevity, however it handled the 9 to 12hr intervals fine in test blocks 1 & 3 – but the test machine does not have sinusoidal loading like real cycling so it is best to be conservative – it is always best to err on side of re-lube and wipe excess more frequently vs push treatment lifespans. I don't suspect that enormous single application longevity is the main brief for SS lube vs very fast lube for most sane length races & day in day riding / training.

Test observations and review.

So as we can see from the block by block that there is a bit to unpack and cover here, and also the landscape is changing. A couple of years ago the general level of drip lubes outside of the very expensive and sometimes hard to apply UFO drip still left a fair bit to be desired vs immersive waxing.

Lately there have been multiple high profile releases of true next generation drip lubes, and – you may have noticed they all have a high grade wax base, and are all either a chain coating type lube or a “paste” which offers vastly greater contamination resistance vs wet lubes. I cant think off the top of my head of a high profile next gen wet lube release.

So forgive as always the length of my review as cover not only the lube itself but also a bit to cover re the shift in drip lube performance being driven by these lubes and how that fits vs previous as well as immersive hot melt waxing.

I also need to cover briefly a very important aspect of lubricant performance that online cycling magazines tend to miss, which leads to a lot of misleading / misguided views and comments from readers – it is time that this is addressed properly in each review now to help ensure i get the message across if a reader only ever gets around to reading a single one of my lube reviews.

Firstly though, lets complete the main review for Silca SS drip. An interesting aspect of this lube not covered in the block by block is just how darn slippery this lube is to apply to your chain. Some customers have been caught out applying as per how they habitually applied previous drip lube – which was to carefully apply one drop on top of each roller on bottom span of chain. If you try that method with this lube, you will

find it slides right around the roller and off onto the floor. This could be due to the addition of some alcohol to help the carrier “flash off” and begin setting faster after application.

If you have seen in the video, Josh is applying on the bottom span of chain but backpedalling as does so and lube appears to stay on chain ok. The reality is (as this may depend on ambient temp, chain temp, humidity) is that even ensuring back pedalling doesn't always prevent the lubricant from quickly sliding off chain and onto the floor which has led to some frustrated feedback.

Personally I am finding it is better to apply to top of the chain over the cassette, starting with the small ring and small cog (or smallest your electronic drivetrain will allow you in) back pedalling as you apply. Once you have completed a full circuit of chain, I back pedalled 20 times in small / small, and then as per Josh instructions I moved to big cog, and to further work the theory of opening up plates via chain line angle, I also shifted to big ring. In this gear combo you usually cannot back pedal so I forward pedalled 20 times.

I then massaged in, whilst chain in that position I thoroughly wiped excess from small cog used to initially apply, I quickly wiped excess from chain rings and jockey wheels, and then thoroughly, (THOROUGHLY) wiped excess from outside of chain (I use microfibre cloths – I buy them in bulk from microfibre world, super markets can charge 10 bucks for 3, I get a box of 200 delivered for 100 odd bucks of high quality high absorbent microfibre cloths – yeehaa).

Ensuring excess lube wiped clean from outside is the secret to a) ensuring you achieve a super clean drive train for thousands of km's as per test (and I have been field testing – same result), as well as minimising contamination.

Ok, before I move onto next part of lube review – I need to do a quick interlude here re proper chain cleaning & prep. If you are familiar with ZFC recommended chain cleaning prep skip this section and get back to main review.

I also need to cover in each of my reviews now re proper chain cleaning & prep as this is still often missed, there is a too much miss-information out there on the ol interweb from article comments, forums, and even manufacturer recommended processes. This can easily lead to poorly prepped chains where lubricant is unable to bond to clean & clear chain metal. A poorly prepped chain leads to crap experience and result for the user with chosen top lube / wax with user often blaming the product being unaware it was their prep that was the issue.

I prep a lot (and I mean a lot) of chains for the customers for the worlds top lubricant options – currently sitting on circa 1500+ prepped chain sales per year, and I didn't guess at the method I use, this was learned from the industry pioneers in this area. It is simple, cheap and gives you a guaranteed correct end result.

There is a propensity for people to use petrol, diesel, degreasers, citrus degreasers etc, but these all have a variety of issues from leaving a heavy film behind or risk of corrosive stress cracking of metal (acidic solvents). Personally I still recommend simply mineral turps (this is organinc, will not cause stress cracking and is quite “clean” in that it leaves little film behind for final stage to deal with, and is still quite cheap.

For new chains with factory grease you need to give an initial soak of at least 15mins, again with Min turps you have no concerns re corrosive stress cracking – 2 mins shaking in a container is often not sufficient to properly dissolve factory / packing grease.

After initial soak and agitated bath, move to 2 x 2 min agitated baths in mineral turps **followed by 2 x agitated baths with methylated spirits / denatured alcohol**. This final step is CRITICAL to ensure remove film left behind from cleaning and enable chosen top lubricant & fancy friction modifiers to bond to clean & clear chain metal after allowing metho to dry. If you leave a film behind for lubricant to need to fight through – your end results will vary from not as good as it could have been to downright poor.

*****If Campy chain add one more round of turps as heavier factory grease*****

*****IF SRAM CHAIN ADD 2 to 3 more rounds of mineral turps due to srams use of FACTORY GLUE and NEVER ONE YOUR LIFE RUN A SRAM CHIAN WITH THEIR FACTORY GLUE IN A RACE*****

The above process is simple, it is cheap (slightly less so for sram chains thanks for factory glue), and it leads to a successful result 100% of the time. Also the solvents used are easily recycled by local council hazardous liquid waste disposal.

If you read forums on chain cleaning & maintenance – it's a nightmare of conflicting information. Some swear by just using X, others have a quite astounding number of steps and products involved, all will swear it is the best way to clean chain, none have any proof as to how they have tested and assessed this claim.

Also, there is also a propensity for people to think that oh I just buy and ultrasonic, bung it in with solvent x, and magically have perfectly prepped chain. What they have is a chain with a heavy film left on it, and a very poor bond (or no bond) of top lube to chain metal, a terrible user experience thinking the lube / wax is rubbish. If you have an ultrasonic, follow the same cleaning steps, just in an ultrasonic. (Note this is for new chains, for cleaning wax chains / prepping race chains this is more involved, refer to race chain and ultrasonic cleaning guide on website – instructions tab).

Lastly - It is not uncommon for lubricant manufacturer's to release instructions of various "On bike" cleans spraying with some cleaning spray (sometimes proprietary). At time of writing I have not tested these however knowing how difficult factory grease is to properly clean from deep inside chain and ensure no film left behind, I am not convinced, remotely, that an on bike clean will achieve the required level of proper chain prep. My personal belief is that with some mfg's the marketing department steps in, is concerned that if launch product instructing a proper off bike clean as the correct prep that this may scare off potential customers, and so it is much better to go to market with hey just spray this on and wipe chain the drip lube on and all is grand approach as this looks far easier and less intimidating. As this method is likely to leave a good amount of factory grease inside chain which FEELS smooth, for some lubes customer will think all is fine and dandy no one can measure their watts losses or keeps accurate track of chain wear rates so all is fine from mfg front. However for lubes where it will be noticed

– ie chain coating type lubricant where instead of a beautifully clean silky smooth chain, having a gluggy mess from factory grease left in chain, or a horribly dry sounding and feeling chain in 40km from cleaning out factory lube but leaving a film behind so the chain coating lube was unable to bond – that is noticed and so we typically see these mfg's take more pains with their prep instructions regardless of marketing departments heart palpitations.

In short – don't skimp on initial chain prep. If you have read this far you are invested in saving watts, saving drivetrain wear, and want a clean drive train, so trust me and do a proper off bike clean, and if unsure how to pop a chain on and off – read wax zen master guide / plenty of you tube video's – its really easy (albeit you may need to buy a tool, but once you have bought it you have it forever for all your new chains).

What about existing chains?

I get this question all the time so need to quickly cover in these detail reviews too, as I already get many asking re whether ok to clean up existing chain for Silca SS.

I do not recommend cleaning existing chains for road bikes older than about 1000km or offroad older than about 300km. This is simply because a) instead of circa 3 x 200ml rounds of mineral turps it will be 10 to 15 rounds and 3 to 4 litres to get perfectly clean and b) that's a lot of solvent for a chain whose low friction coating has now already been compromised / it may be 30% worn already etc.

You need to apply some basic logic to this general rule of thumb though. Ie an AXS chain is pretty hardy and expensive so may be worth it past this point, whereas a 105 chain I would question if its worth the bother past 500km. A sram xx1 / X01 chain is exceptionally hardy and long lasting, a GX /NX chain will wear notably every single ride you do with factory grease on it – so the clean / not clean cut offs will be very different – a GX chain I wouldn't bother if it had done even 3 or 5 rides, an xx1 would possibly still be worth cleaning after 1000km of decent mtd riding etc (they really are super hardy...).

Right - Back to the Lube review!

Right , lets assume you have now cleaned and prepped you chain perfectly and we are back to assuming you are trying to apply Silca SS and having fun with the lube sliding off the chain. Yes that's how it is, doing over the cassette helps, make sure you aren't doing over your good carpet, then follow instructions re working in, and also thoroughly wiping off all excess from outside of chain, chain rings, cassette and jockey wheels post application & work in – its worth it, it doesn't take long, and you drivetrain will remain super clean for thousands of km's and many re-lubes.

Here we get to the first critical point re Silca SS drip lube. It is currently the first and only wax emulsion drip lube not to have significant initial penetration issues – and this is a very key point indeed. All other wax emulsion lubes tested thus far, even with quite some work to negate (heating chain, heating lube, working in thoroughly) have had significant initial penetration issues.

What this means is that post perfect chain clean / prep, if a lubricant has penetration issues – which shows up easily with a high block 1 wear rate, then this obviously means your chain is running high friction. So you may have key race you have trained for, clean chain / prep new chain and apply a top lube but one that has notable penetration issues, and you will not be enjoying the low friction chain you were expecting / believing you had. With Silca SS, follow the instructions and you do not have this situation.

Also, penetration issues make those lubricants are REAL pain in the arse to use as your day to day lubricant if your ride in wet conditions. If you only ride in the dry, once you have finally moved to point where all is as it should be and things running low friction and low wear, these lubricants can have very high dry contamination resistance and so maintenance intervals to clean and re-set contamination are very long. However ALL drip lubricants need to be fully solvent flush cleaned to re-set contamination post wet ride (unless they are compatible with popping into an immersive wax pot, like Silca SS).

There is just no getting around this, your chain isn't water proof, it is being hosed by front tyre with dirty water from road / trail, water transports this deep into chain, it is pressed into set lube from huge pressures from your pedalling load, and from there it is effectively land locked. Dripping more lube on and wiping improves ratio of lubricant to contamination, but its not really shifting any contamination out. So unless you intervene and fully solvent flush clean to re-set, your next rides in the sun will be high friction high wear just as if you were still riding in the rain. Place your bets how many pro's, post a wet race, just drip some lube on that chain and wipe and re-use for next race. Zero. Unless they have the worst / laziest mechanic ever.

So here is where the typical initial penetration issues of wax emulsion lubes becomes a real problem for riders who head out / commute in all conditions. It is one thing to need to take the time to clean and reset contamination post wet rides, it is another to add onto this significant wear / friction on your newly cleaned chain due to poor penetration, or to have to faff around with heating chain and lube to try to partially (but not fully) negate – so it becomes a lot of work. This makes use of lubes like squirt / Smoove etc quite a time consuming lube if you regularly head out in wet conditions.

So not to make a Leo Tolstoy novel of it, but suffice to say, delivering a wax emulsion lube with zero initial penetration issues really is a bit of a big deal.

And remember, even better – vs needing to use solvents to clean, post wet ride you can simply hot melt wax it or mspeedwax it and reset. You ripper – albeit bonus points for doing a bit of clean first to minimise amount of contamination brought into wax pot – it takes awhile to build up enough to have measurable negative impact, but it will happen over multiple waxes if putting a dirty chain into wax pot – post wet ride with a wax / wax emulsion chain, boil up kettle and do some boiling water rinses in an OPEN container (closed container will explode open and scald your face), blow dry, mineral turps rinse, blow dry, metho rinse, blow dry – into wax pot, and yeeha. I can do that in 10 mins as I have a \$14 kettle and a \$14 hairdryer on my bench ready for when I get back from a muddy cx race and I have silky smooth clean chain being popped into wax pot keeping wax in the pot mint.

The second critical point for Silca SS drip lube - Its block 2 – dry contamination wear rate was the lowest tested at time of testing (just beaten by updated test of Tru-Tension tungsten race lube, but that lubricant was re-applied at double the rate / twice as often – whereas silca was applied at the standard re-lube intervals). At just 4.6% for this block, it really proves that it sets to a chain coating type lubricant, bugger all dust is penetrating into chain, and we can see that confirmed by the block 3 wear rate which was 0%, that really nothing of note got in there, the lubricant had managed to “layer up” to an effective degree, and the chain is highly protected against wear.

And, (and I really need to start taking photos part way through tests vs 1000km mark and at end) – Silca SS was VERY clean for the first 3000km of test. I simply always ensured I thoroughly wiped all excess after working in (you need lube inside chain not outside- lube outside just gathers contamination. Remember Muc-Offs lube with UV light to ensure all of the OUTSIDE of your chain was covered with lube – that was a great way to ensure you turned your chain in to a coherent sludge of grinding paste in record time. If you want to know how well it achieved that, look up the test results for that lube...).

So we have quite the highlight to shout about re this test, in that at the end of the first 3000km of testing, Silca Super Secret was sitting at a **cumulative wear of just 7.5% of the 0.5% wear allowance.**

The average wear for all lubricants tested to this point is 64%. Silca SS drip is now the clubhouse leader for lowest wear rate at end of first 3 blocks, and as mentioned above at this point in the test the chain was still exceptionally clean. If you get a different result, you are either a) over applying or b) not taking care of excess properly post lube and work in.

So, if you only ride in the dry, this drip lube is really, really something. If we compare the what were previously thought of as good wax emulsion lubes, Squirt was at 61% end of block 3, Smoove 38.6%. If I adjust for initial penetration issue with those lubricants because you were smart and immersive applied after chain clean, and I reduce their block 1 wear rate down to 4.5% vs 19.1% (this is the wear rate recorded when I applied those lubes immersive vs drip on and work in) then Squirt would still be at 44.5% after 3000km and Smoove would move to 23.9% . This is versus 7.5% for same point for Silca SS.

There is simply no way to beat around the bush here – its different league altogether. Tru-Tension Tungsten All weather is going to be the only wax emulsion lube in the vicinity but that is also another lube that really needs to be applied either immersive or with some really thorough work (heating chain, lube, super thorough work in etc – I will be discussing immersive tub with Tru-Tension soon as that is still up there and bit ahead for wet conditions) – Tru tension was hurt a little with a 14% block 1 wear rate so re-testing with an initial immersive application is on the cards, and Tru Tension also remains very very clean so has been popular, but.... With Silca SS now on the scene with those super low wear rates, TT AW is going to need to release and immersive tub as a minimum to try to keep up.

How did Silca SS beat MSpeedwax in dry block 2?

There are two likely possibilities here, firstly Silca SS is a blend of waxes some of which may be longer lasting vs the very high grade paraffin used as the base with mspeedwax which has a tendency to be abraded off. This is a double edged sword – Mspeedwax has tested as having little to no friction increase under abrasive contamination as the contamination is mostly shed as it abrades the wax off, but – there comes a point where the loss of wax leads to insufficient treatment left – and the test intervals may have just been starting to reach that point. (I have just completed a test where chain was re-waxed with mspeedwax at double the rate to match the test done for UFO drip which was also done at double application rate to get a more oranges to oranges comparison between the two main competing products at the time the test was booked, and the wear rates recorded at the doubled re-wax rate were near zero for first 3000km).

Secondly, wax emulsion lubes can tend to “layer up” over time, and so over number applications some amount of lubricant can be layered in chain, whereas with mspeedwax each treatment will start in the same position and then slowly wear thinner and thinner until it is re-waxed. As the check measures are done at end of interval for that block, the mspeedwax layer would have been very thin.

But minutes of how one lube works vs another aside, there is simply no overstating that 7.5% and a very clean looking chain at the end of the first 3000km of the test including the dry contamination block is really, really something. Comparing to the worst lubricant tested to date, Muc-Off Nano, that was at 145.4% of wear allowance at the end of block 2 (2000km), and like its hydrodynamic cousin, both of these wet lubes soaked up every particle of abrasive continuation to use up their full wear allowance in just this 1000km contamination block. That's what the difference can be between a proven great lube vs a lube with a lot of powerful marketing that becomes liquid sandpaper in short order. You can imagine the cost to run difference for your drive train running Silca SS drip vs Muc off on your drivetrain (and I have graphs for that) – especially if you ride gravel and have AXS or Ekar – the cassette / chain / chain ring lifespan difference between the top and worst lubes tested here is circa 10x the running cost difference. Somewhat significant.

Next Segue - Why cost to run drivetrain needs to be understood vs poo poo'ing the cost of a bottle of lubricant to save a watt.

I have already read a number of comments on this product launch and forums etc denouncing the cost of a bottle of Silca SS as ridiculous, who are these people that are willing to pay that kind of money to maybe save a watt on their chain friction etc etc– and I have not seen an article yet that balances this by shifting the focus from hey you may save a watt or two on race day, to what the top lubes can mean re cost to run your drive train over time vs much cheaper but average to poor performing lubricants.

It is extremely prevalent that most readers will have a tendency to just look at the cost of bottle of lubricant, and think of watts savings claims as some theoretical static figure from a lab test for the most white line fever racers only who would be interested in paying that sum of money for a bottle of lube.

As yet outside of ZFC testing and reviews, there is zero focus on what a top performing lubricant may mean for your drive train running costs if it lives up to its billing. Remember, if the lubricant delivers on its low friction promises, and stays low friction in the real world vs quickly absorbing contamination, that 1 or 2w saved in the lab very quickly become 5 to 10w difference in the real world after a couple thousand kms. That's 5 to 10w of energy every pedal stroke you are putting into wearing through your chain, cassette and chain rings at a much greater rate vs that energy propelling you forwards faster with every pedal stroke.

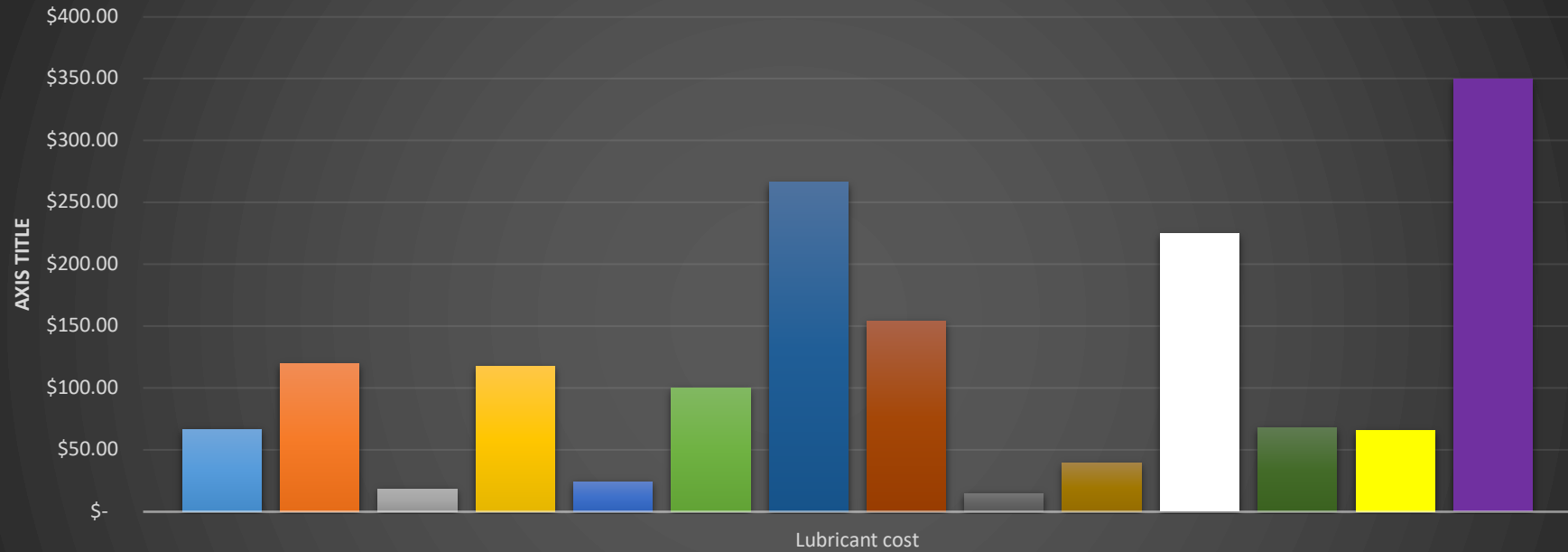
So it is a critically important performance metric that needs to be assessed and covered properly, and it quickly became the most sought after data from ZFC testing. The cost of top tier groupsets can be right up there, and having components last tens of thousands of km's – even for offroad use, vs ripping through them in a single chains lifespan – that on a poor lubricant would have been a short lifespan, the cost to run difference over time is simply huge between the genuine top lubricants vs those with big claims and terrible real world performance.

If you have considered this aspect then hats off to you, it means you are thinking deeper than the single level thinking that is done is 99% of lubricant reviews and the subsequent comments that follow. I think it's time for those in the industry conducting reviews of lubricants to not just focus on watts saving claim and price, how it applied and looked / felt after a few rides, but to go a little deeper. One doesn't have to go ZFC deep to bring a bit more balance and depth to a review and cost of lubricant by simply covering the cost to run topic of drivetrain wear savings if the promised watts savings and contamination resistance claims are delivered, and then people can look here for the high profile lubricant releases to see if they did or did not live up to their claims and that lube's cost to run, vs the typical this is outrageous who are these people paying \$55 a bottle to save a watt commentary etc.

I have all the graphs updated on lubricant test page on website, but since we are here, pls find the graphs of cost to run for Silca SS drip vs the competition tested thus far. Due to combination of both very low overall usage rate (I only used 60% of a bottle for the first 5000km of main test) and the accompanying extremely low drive train wear rates, here are a couple of cost to run graphs modelled on running ultegra level groupset, getting 2 chains per cassette by replacing by 0.5% wear, and 6 chains per set of chain rings – again something you should achieve by replacing chains by 0.5% wear.

Lubricant Cost per 10,000km

*Lower is better



Rock n Roll Gold

Molten Speed Wax

Squirt

White Lightning Epic Ride

Smoove

Muc Off Hydrodynamic (team sky)

Muc Off Nano

Cycle Star Gold

Nix Frix Shun

Wend Wax

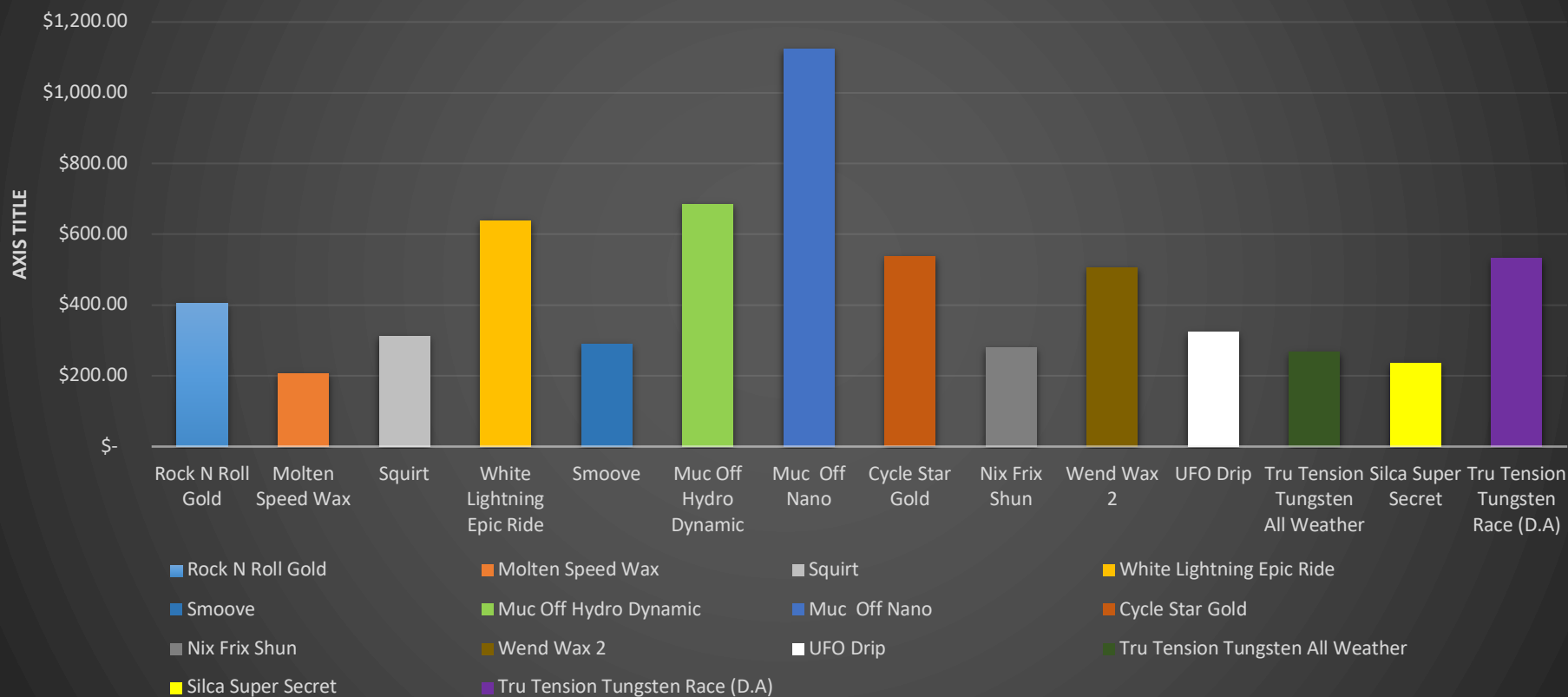
UFO Drip

Tru-Tension Tungsten All Weather

Silca Super Secret Drip

Tru-Tension Tungsten Race (D.A)

**Total Cost to run drivetrain per 10,000km - Lower is better - factoring
lubricant cost plus chain, cassette & chain ring parts wear rates.
(costed on ultegra 11spd parts from block 1-5 data)**



So as we can see, Silca SS drip at \$55 a bottle overall costs circa half the amount to run per 10,000km vs rock n roll gold – a generally well regarded and well reviewed lubricant, which costs normally circa \$15 a bottle – but has a much higher usage rate, and recorded a much higher parts wear rate. Lubricants with both a very high price tag and a very high wear rate are really costing riders a bomb, and yet of course the marketing for these lubes would have you believing you are buying the most amazing liquid ever invented. Hence why independent testing was so badly needed.

If you see comments on reviews and forums beleaguering the crazy price for a bottle of lube that may save you a watt, correct them re the above for me would you? Theres only one of me, it's a critically important metric, but its like trying to turn the titanic with a paddle. Im getting there but the faster we can get people thinking a little deeper than level 1 the more people we will save using an average or crap lube, and burning through drive train components.

Aside from being flat out wasteful, wouldn't we all rather be spending out discretionary cycling budget on stuff like those new glasses or helmet or skinsuit you were coveting? Or those race wheels or cycling holidays? Ensuring you run one of the genuine top lubricants really does make one heck of difference to where you can put your hard earned \$\$\$. If we take the best and worst cases for an avid rider, the difference between say Silca SS drip and Muc-Off nano over a 15,000km riding year, that cost to run difference just in lube choice if you are riding on a top tier groupset, it literally is a pretty decent cycling holiday or a decent set of wheels.

As this is such a critical area re lubricant performance ZFC will be expanding the modelling and have more cost to run graphs soon to cover gravel and mtb groupsets as well as top tier road groupsets to put numbers up that are right there for you without having to try and fluff around with a calculator trying to re-work modelling from ultegra to axs etc. '

But the summary is – look and think a little deeper than \$55 a bottle to save a watt as is the normal online magazine review coverage.

K – reckon I’ve really hammered that nail enough for now, but expect that nail and chain prep to be hammered in every detail review henceforth to ensure that I cover this with readers if that be the only review they get time or inclination to read. 😊

Back the main review part 2

Moving onto wet performance, and here we have a bit of a tale of two halves. After a record breaking start, it definitely did swing once it got wet, but – we also need to put the big numbers jump into perspective. Firstly - many lubes don’t even make it to wet block 4 before they have blown their wear rate limit, and secondly vs others that did make it here, Silca SS wasn’t that far off the average.

It will be interesting to see if I can get to re-test in future with longer set time prior to wet test blocks, and it is pleasing to see that Silca have already taken on board feedback coming in from customers in wet and humid countries around the world, jumped into a comprehensive investigation around set times, and updated set time instructions based on this. This is not always how mfg’s respond re new lube releases – it is not uncommon for a see no evil hear no evil response / no response at all approach.

However, this may not be good enough for some potential customers (ie if you train day in day out in intrepid weather) – but if you really like the sound of silca SS but have some reservations re meeting recommended set times, then like many immersive waxers you should simply consider running two training chains. Im a big proponent of two training chains in general for anyone who rides even semi decent annual km’s / ride in tough conditions, as it guarantees you get two chains through your cassette. You have to buy a new chain sooner or later anyway, so pre-buying your next chain costs you no more – in fact if it ensures you get two chains through cassette vs one – it is highly likely to save you some handy \$\$ for being prescient enough to pre buy next chain and run two in rotation. Running two training chains enables you would to wipe chain clean post ride, apply lube, work in, pop chain off to allow a nice long set time, and pop second chain ready for next ride. Yeehaa.

The more you ride, the harsher or more humid the conditions your ride / live in, the more this option should be of strong consideration. If sticking with one chain and riding in wet / live in humid – you are really looking at a 24hour set time minimum aim before next ride, so be mindful of this and Silca's updated recommendations.

This is a handy time to also cover that Silca SS drip was released more or less in conjunction with Silca Hot Melt wax and that the two are completely able to be mixed and matched, and you can get a bag of Hot melt and a bottle of Silca SS drip in a bundle – so if set time is a worry before next wet ride, then pop it in your bag of hot melt. Also, post wet ride to ensure contamination cleared out, do a hot melt again vs Silca SS application.

Hot Melt waxing is unbeatable for day in day out low friction and wear for those who ride in wet conditions due to the fact that contamination is reset back to near zero after each ride and re-wax.

As covered before, contamination brought in by wet rides is effectively pressed into and land locked in set lube, and adding a fresh coat of drip lube does not clean out this contamination, what you are doing is improving the ratio of lubricant to contamination, but lets run some quick numbers here and you will understand why immersive waxers have such a grand time overall.

Add 5mls of drip lube across 108 links of chain post wet ride, that is less than 0.05ml of lubricant per link, going over the top of a set coating that has contamination pressed into it abrading against chain metal. With an immersive wax, you are putting chain into a pot (or bag) of 400ml + of lubricant, the old contaminated coating melts off, and the chain is re-coated. As the old contaminated coating melts off into wax, yes over time the wax becomes less amazing, but you can do the math on what is running on your chain when you are putting this into 400ml + vs dripping 0.05ml over the top. You can see with mspeedwax test post wet block the wear rates immediately reset back to Zero, whereas all drip lubes struggle post wet block 4 with continuing high wear rates.

Versus doing a full solvent flush clean to reset post every wet ride, popping chain into a pot and turning a switch from off to low sure is easier and a heck of lot cheaper. But also as discussed before, there are bonus points post wet rides to rip through a quick clean (even if its just the

boiling water flush rinses) to minimise rate you import contamination into wax pot to keep the wax in there amazing for longer before needing to change to a fresh bag.

Whilst this is a silca product review Im going to also answer a question im getting multiple times a day already – yes you can use silca drip with Mspeedwax without issues, nothing funky happens mixing the different friction modifiers (that we know of) nor the possibly slightly different waxes. It is possible if you ask Silca they may not recommend to interchange with Mspeedwax and please use only Hot Melt, then again maybe they wont mind at all if it is what gets you over line buying a bottle of Silca SS. Mspeedwax may say no we aren't sure if its compatible you should just make the full switch to immersive waxing with mspeedwax, but if buying a bottle of Silca SS drip helps you re keeping up with re-wax anxiety, then maybe they also wont mind you buying a bottle of Silca SS if it helps you also buy a bag of Mspeedwax.

Either way, there is no doubt that the Silca SS is helping more people also get a bag of wax of one type or the other, and again the more cyclists that add a bag of Silca Hot Melt or Mspeedwax to their low friction chain lubrication arsenal, the more cyclists are going to saving even more drive train parts wear and using a lot less solvents for drivetrain maintenance ending up goodness knows where most times.

Honestly, you just can't go wrong – its just clean, low friction, low drive train wear days on your horizon if you choose any of the above paths in any combination.

Finally in this overall wrap section I need to address another question I get all the time, is Tungsten Disulphide a better friction modifier than Molybdenum?

Silca have in the product info a graph showing WSO (Tungsten Disulphide) as having a much lower co-efficient of friction vs Moly. However, note that data comes from them being used in very different applications (ie race car engines), things may not be as clear cut, or as clear a

difference when used in a wax emulsion in a chain lube. Chemicals behave differently in different environments – water behaves differently in your freezer vs when your kettle is boiling it etc. At the time of writing we are all still waiting for some outright efficiency data and I have spoken with Josh and that is being worked on very hard as I type. It is too long to go into here, but outright efficiency testing of chain lubricants has many traps, currently there is only one independent facility offering outright efficiency data, however we have seen very peculiar results from this facility with a number of lubricants tested (ie we see friction going both down, then UP, then down, by many watts – which is impossible in a clean lab test). As such this independent test facility has not been used and Silca are working on in house testing, however the FTT machines as pioneered by Jason Smith of Friction Facts are not easily replicated to produce matching test data in a different lab.

This is also a project for ZFC to have an outright efficiency test machine to close the loop on my current wear correlation test, however I can tell you in brief that get matching data with a known trusted test lab EVERYTHING needs to be the same from environmental conditions, to chain ring and cog sizes, to rpm, to calibration protocols to ensure all sensors and motors up to a stable temperature and on and on. If everything is not precisely the same and different labs are trying to measure efficiency losses to say 0.1w accuracy and all coming out with different numbers for the same lubes – we just end up with muddied waters vs clearer waters – so bear with us on this one – it is being worked on but its tricky and spending tens of thousands of \$ on a machine to make waters less clear would not be optimal.

However, as I stated earlier in the piece, whilst at this time we do not have outright efficiency data, the extreme lack of wear overall and the fact this is a chain coating type lubricant, the odds are very high that Silca SS will be at the very point end of the outright efficiency league table, but whether silca with tungsten disulphide is faster than Mspeedwax with moly, and if it is, is it 0.1 of a watt or 1watt to help justify the cost difference between the different bags of waxes, at this time that is still up to Silca to provide the data and full test protocol

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ZFC Overall Performance Ratings

Race Day Lubricant Road – 10/10

As above awaiting some outright efficiency numbers, but factoring in the ease of penetration, the extreme low wear rate in dry conditions, and chain coating type lubricant – it is likely to be at the very pointy end of low friction lubricant choices. (note if race is wet and long-ish, allow 48hr set time).

Race Day Lubricant MTB / CX / Gravel – 10/10

Testing showed that dry dust / dirt has extremely low penetration – Silca SS remained exceptionally clean through dry contamination block 2 and lowest recorded wear rate.

Everyday Lubricant – 10/10 dry riding – 7/10 for wet / humid countries.

If you only ride in dry and your place of residence is not really humid, this is lubricant on its own is extremely hard to beat – It has no penetration issues, it is exceptionally clean, it is very easy to keep exceptionally clean, and you have the option of mixing & matching with Silca Hot Melt and Mspeedwax for an easy periodic full flush clean without needing to use & dispose of any solvents, and set time in “Normal” conditions of 8 to 12 hours pre dry rides means all you need to do is re-lube after get home from ride, shower, meal, and you are sweet for a big day again next day.

If where you live you tend to ride a lot in wet and or live in very humid conditions, not that ideally to get any decent lifespan in a wet ride you are looking at a 48hour set time for optimal performance which for some may be tricky, and even then until further testing can be done, I do not have good data on how long you can go in wet conditions ride before things get bad, but the lesser the set time and the more humid the conditions for the set time, the lesser the distance ride in wet conditions you can go before Silca SS will struggle to hold off recording some measurable wear which = friction.

Remember however you have options;

- 1) Run two training chains, something I always recommend anyway to ensure you get two chains through your cassette – and this makes it easier to attain the more optimal set times of 24 to 48 hours.
- 2) Use in conjunction with Silca Hot Melt or Mpspeedwax – use the hot melt / msw waxed chain on wet days, Silca SS drip on dry days.

Harsh Conditions Lubricant – 7/10

Hedging my bets here – the test result for wet contamination / extreme contamination blocks wasn't amazing, but it also wasn't that far off average for those tough blocks either – however the end result of how well Silca SS will go in a harsh conditions result after further input from Josh Poertner is going to depend quite a bit on;

- Were you able to give lubricant at least 24hr set time, preferably 48hrs if in humid conditions pre harsh conditions ride
- How long is your harsh conditions ride.

If you covered the first point well and the harsh conditions ride is of a relatively moderate length (ie CX or XC race) then things are likely to go very well. IF you gave Silca SS a relatively short set time and your event is a 4 or 6 hour wet gravel ride, your chain could be in trouble the last few hours.

Single Application for Long event – ?/10

Unfortunately I was not able to test at this time – I had to move to an urgent test for a major manufacturer during product development, and I am looking to change this test protocol as well.

Based on main test data I would have no issues recommending for any usual long events such as 320km audax or similar in normal conditions. For events like 24hr mtb I would – similar to basically any existing drip lube / wax on the market, swap to fresh chains at around 8hr & 16hr mark depending on conditions. Those who ride 24hrs on a single application of any lube sans Ab graphene will find themselves in last half to last third at best on a pretty done treatment / high friction / high wear chain – remember many of the top lubricants on the market extreme longevity is not their main brief, ultra low friction for a more normal treatment interval of circa 300km ish depending on conditions / power is the aim.

Cost to lubricate (based on blocks 1-5)

Extrapolated drive train running costs table per 10,000km based on blocks 1-5.

(Cost per km of lubricant & assume 2 x chains @0.5mm wear per cassette & 6 x chains per set of chain rings. Australian online + Lbs store RRP prices of ultegra cassettes and chain rings) .

Lubricant cost per 10,00km - \$54.95 per bottle – 0.6 bottles used for 5000km, 1.2 bottles 10,000km	Chains per 10,000km (\$40 per chain) – 1.46 chains	Number of cassettes worn per 10,000km & cost (\$90 per cassette) – 0.73 cassettes	Chain rings cost per 10,000km (\$195 set). 0.24 chainrings	Total Drive train running cost per 10,000km
\$65.94	\$58.4	\$65.7	\$46.8	\$236.84

As covered (THOROUGHLY) in main overview, despite the high cost of a bottle of Silca SS, when factoring in its low usage rate and extremely low component wear rate – especially in dry conditions – Silca SS is currently the LEADER IN CHEAPEST COST TO RUN PER 10,000km of any drip lube tested. I have another high end drip lube test to update after this one, and that will be nowhere close. The only lubricant ahead of Silca SS re cost to run at this time and still the leader is Mspeedwax but that is not a drip lube.

Again versus another commonly used and well regarded lubricant such as Rock N Gold which is only \$15 a bottle, due to its much higher usage rate and component wear rate, RNR gold comes in nearly double the cost to run overall per 10,000km.

Lets all help our fellow cyclists around the globe and online magazine reviewers think little deeper than the “wow look at cost of that lube to maybe save a watt or two” mentality – there’s a pretty darn important one little extra level of thinking to take into account – help them do so. Nicely.

Best online magazine review of lube found:

<https://road.cc/content/review/silca-super-secret-chain-lube-277641#comment-form>

This was overall a better review than most, and im not just saying that because they said some nice things about ZFC, however – they, like pretty much all lube reviews, fail to link the low friction benefits with a likely overall cost to run reduction to offset cost of the lubricant. Also, I do prefer if authors of an article step in if a comment is so far off base that really some extra input would be good to help stop other readers of the comment possibly believing something that is way, way off as per this one below;

“Chris Boardman was asked about posh chain lube when commentating on the Worlds and to paraphrase, said it was all bollocks: Chains are apparently so efficient anyway, that any improvement is so minimal as to count for nothing”

I hope the commenter had this information incorrect, otherwise Chris Boardman has missed a heck of lot of extremely robust data over the last 8 years re the difference between factory grease & top lubricant choices – most especially when those lubricants have been ridden outside for any amount of time, Factory grease and then moving to an average or poor drip lube chain can easily move towards a 15w loss mark at 250w load, whereas the top lubricants can stay circa 5 to 6w loss, fully optimised race chains circa 3.5 to 4w. And again as this gap is almost linearly scalable to rider load, that gap will nearly double ever extra 250w.

So, if a darn near 20w loss gap at 500w power climb is so minimal as to count for nothing, what amount of friction losses in CB or this commenters mind actually count for something?! – 100w?!

Many times on lube reviews im actually genuinely fearful of reading comments because what I read sometimes is just so far off the logic scale it's a little dismaying, but im hoping with more & more cyclists of all demographics every year getting much smarter re chain lubes, friction & wear, that there will be less of this type of comment and more people jumping in to correct when they do come up (NICELY), and that the level of online magazine reviews for lubricants will continue to trend up - **since lubes turn out to be, like tires and a good bike fit, the most important component on your bike.**

Whats up next?

A lot!

Again apologies for delay between new lube tests up and reviews, I have two more tests completed and will be getting to reviews on those, im currently testing a new wonder lube pre release for a major manufacturer, then it will be onto testing the silca drip 360ml tub.

Im pretty excited by this one as the silca tub could be the middle man between drip lubes which have some limitations especially post wet rides, but not being seen as as much of a palava as hot melt waxing (and I may interject here to remind that hot melt waxing in reality is a doddle and a small slow cooker or crock pot costs faff all).

However there has been some interest as to whether this can be a good middle of the road option for those who want to a) do a periodic immersive re-lube vs hot melt, as well as something that is easier to pack and do an immersive re-lube for interstate stage races, bike packing etc – and it could well be.

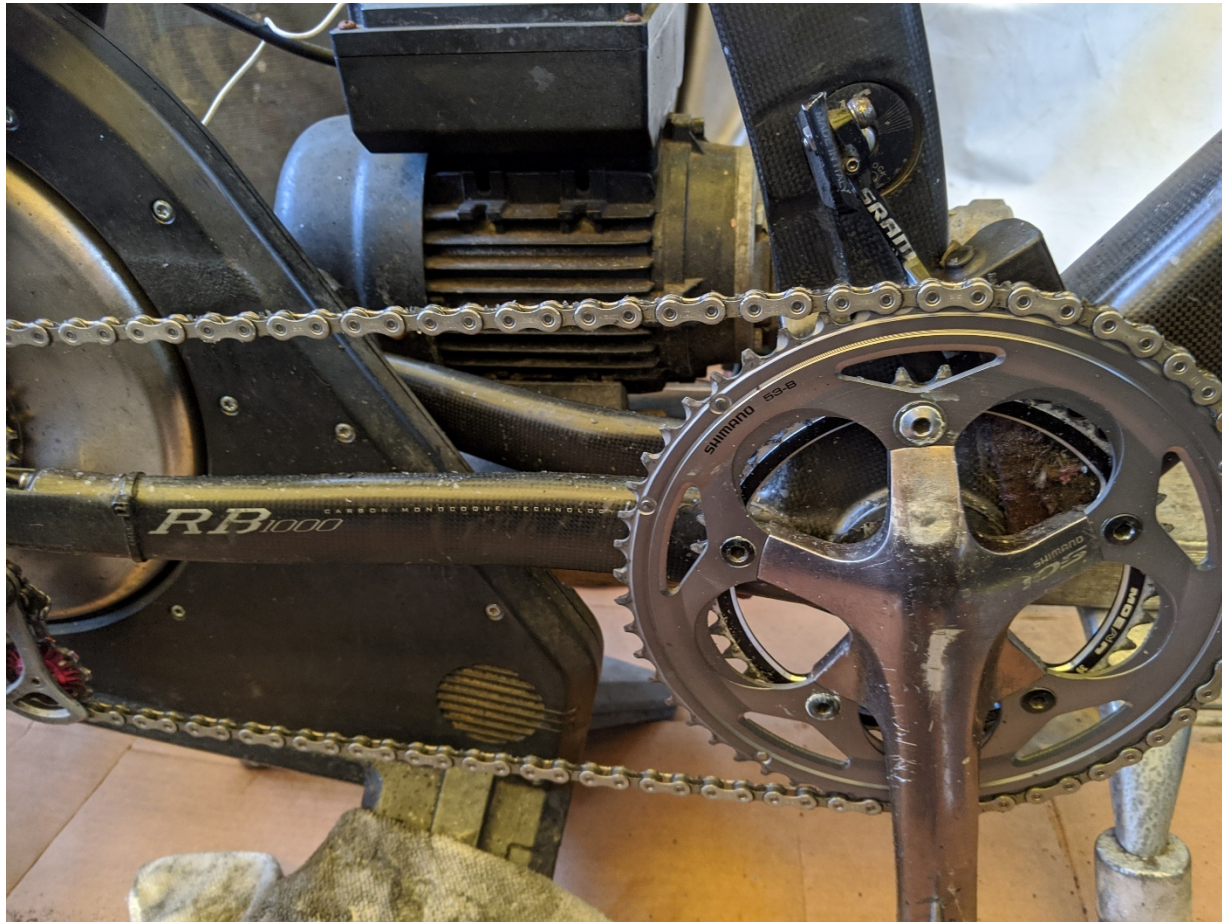
Again for most cases if you can at least wipe outside of chain clean with metho soaked cloth / silca gear wipe and then give a bit of soak, shake the bejeezes out of it, remove and thoroughly wipe excess, allow set time, and it will be very interesting to see how much of a wear rate drop may or may not present using the silca tub every re-lube vs silca drip (for those playing at home though I suspect most will simply use to complement silca drip) – so I will be getting to this test as soon as I have wrapped up current test.

From there – I have a pretty decent long list of lubes that im very keen to put to the test, I will be moving into and setting up new custom built workshop at the end of this year (getting there), getting up and running another (and maybe a third....) test machine so I can keep working through lubricant testing and make a start on cassette longevity test project. I am also conducting chain tensile testing still when I can (currently doing a collaborative test project with 4 countries sorting out what track chain they are going to use, another lab is doing the outright efficiency testing – at the time of writing the ybn sla 410 is currently the strongest and fastest track chain ever tested, but have two high end chains sitting near my machine ready to break and awaiting the friction data on these chains – the friction data for some chains I will not be allowed to publish – the hint will be what does zfc stock and recommend....:)

In short – stay tuned – I will update when I can on insta, FB and latest news section on ZFC website. Thanks for reading, hope it helps you save watts & \$\$\$.

Pics from test

After first 1000km block 1;



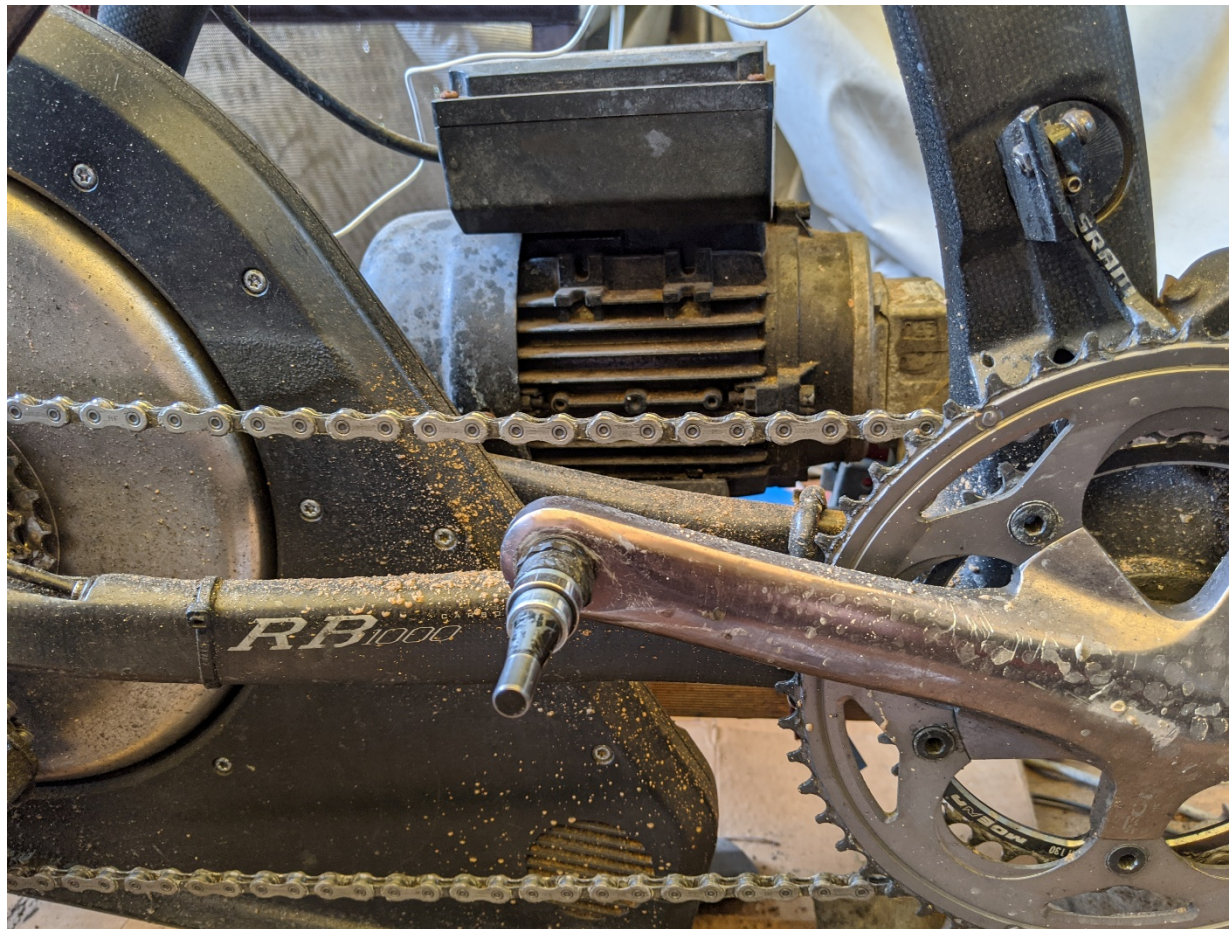
After first thousand kms and 3 applications – you can see Silca SS is exceptionally clean, this did not really change much for the next two thousand km's making it one of the cleanest drip lubes ever tested like Tru-tension Tungsten all weather and Race lubes.

After first 1000km block 1;



After first thousand kms and 3 applications – you can see Silca SS is exceptionally clean, this did not really change much for the next two thousand km's making it one of the cleanest drip lubes ever tested like Tru-tension Tungsten all weather and Race lubes.

Chain ring at end of test –5700 km – during extreme contamination block



Cassette at end of test –5700 km – during extreme contamination block

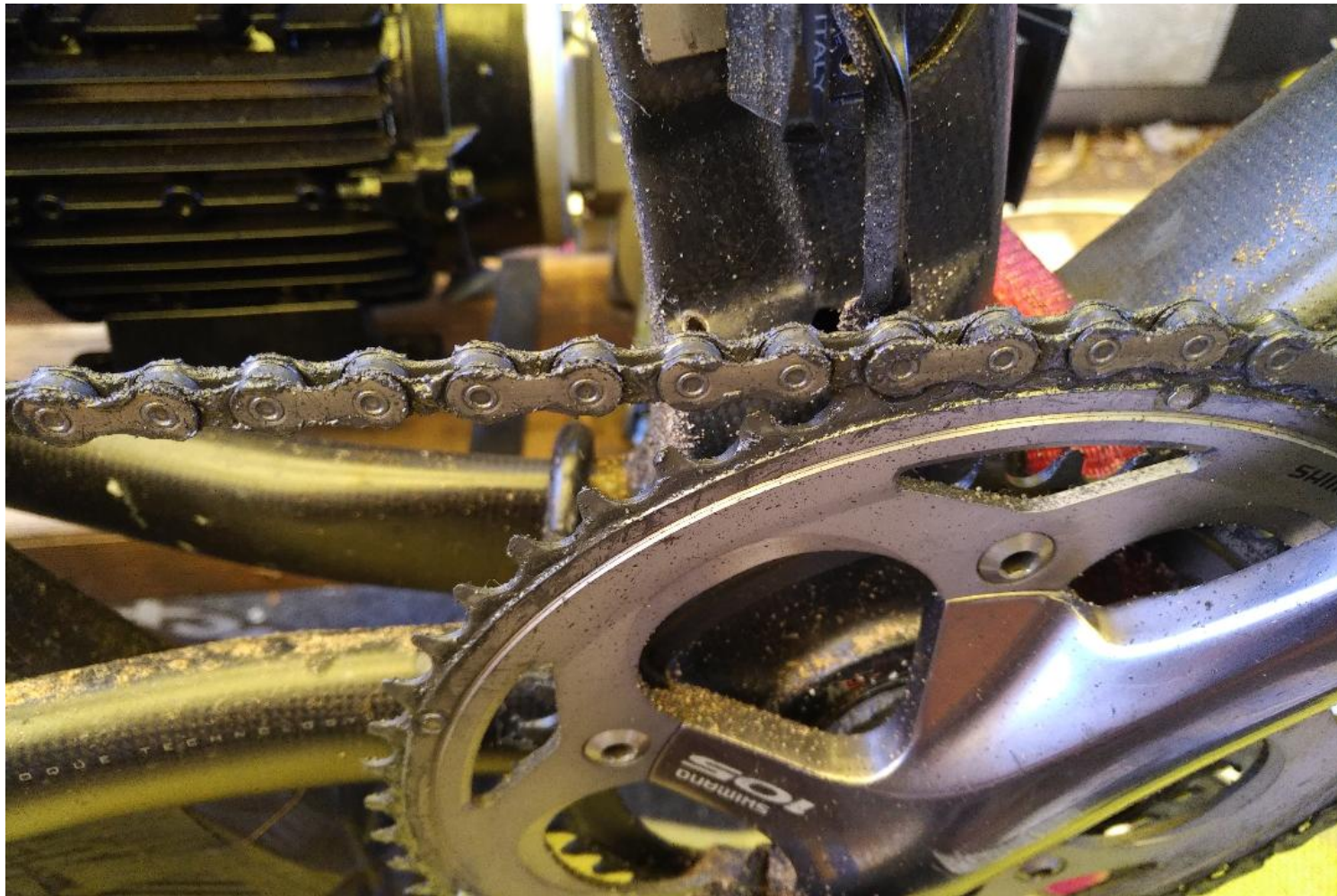


Again to show an exceptional lube vs some other lubes to bench mark against

Wend Wax after 3000km – 98% of wear allowance used at this point – Silca SS – 7.5%



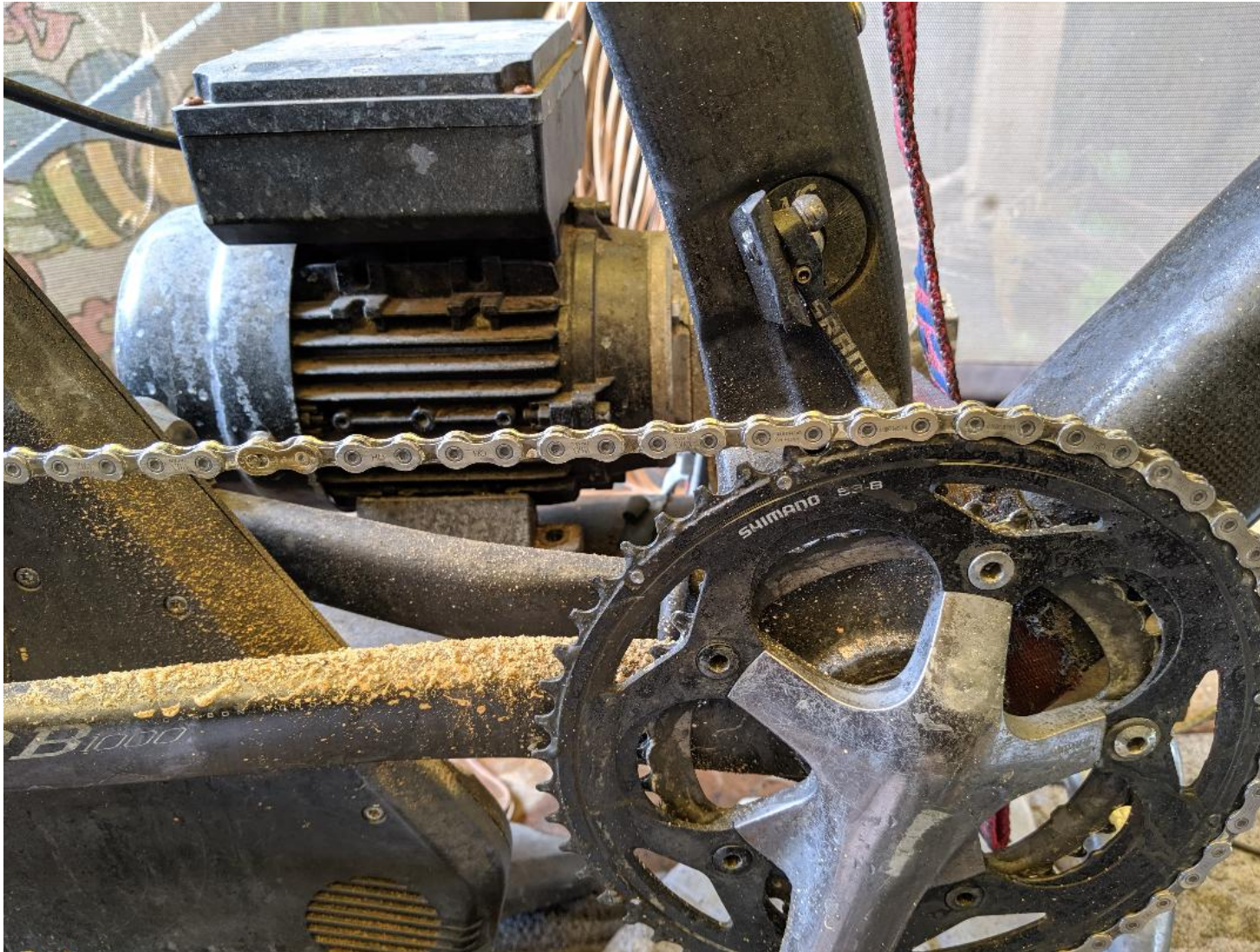
Muc Off Hydro / Nano after 2000km – 145% wear allowance at this point, Silca SS at same point – 7.5% wear.



Still the benchmark due to immersive re-waxing in lab grade wax – Mspeedwax after 6000km; I expect same / very similar from Silca Hot Melt when test.



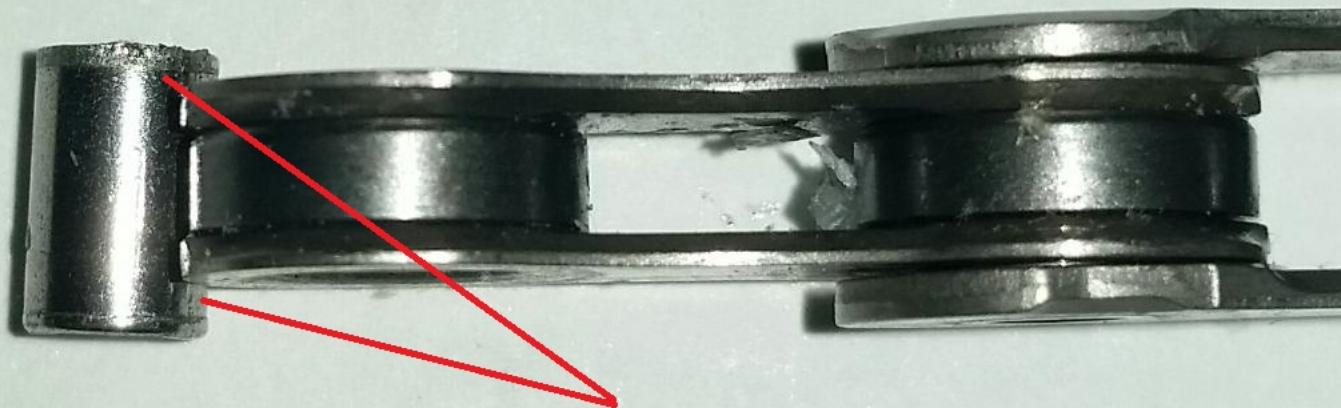
Also exceptionally Clean (but very expensive to run) UFO Drip after 6000km at doubled application rate.



Finally, a quick re-cap on why many wax emulsion lubricants have an initial penetration issue, especially on narrower chains. *Note, you cannot try to negate this by applying over packing / factory grease – packing grease is anti corrosion protection in case they sit on a shelf for two decades, you should

never ride factory grease as a lubricant or add any decent lubricant over the top of it – step 1 it must be properly cleaned off, and depending on lubricant – take some care to negate initial penetration issues, or – start with an ultrasonically cleaned and mspeedwax / silca hot melt prepped chain as you can add any lube straight on top of Mspeedwax / silca hot melt (**exception being ab graphene that should be stand alone prepped with ab graphene)

Pin is riveted to outer plates & does not move. Inner plate articulates around pin. When roller contacts teeth roller stops, and so inner plate also articulates inside roller.

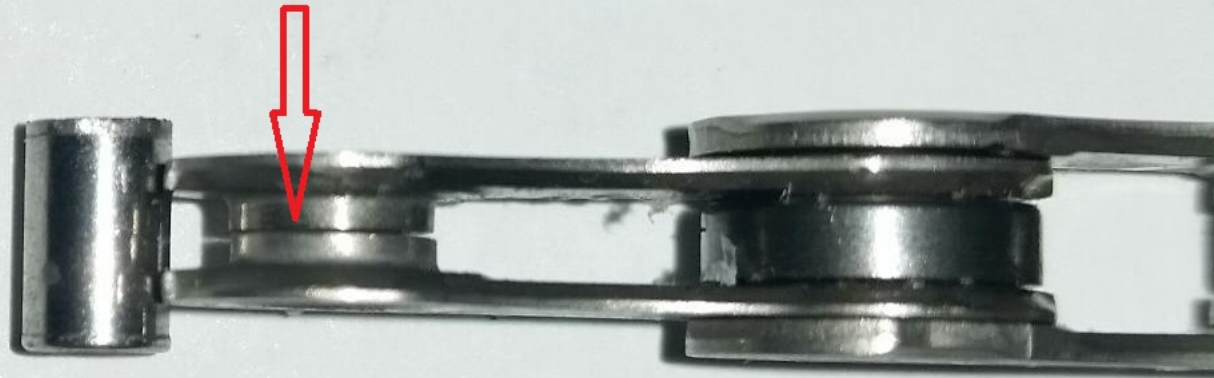


Note amount of pin width that requires lubrication - inner plate shoulders articulate around this area under full rider load.

Now with Roller removed

(Note width of inner plate shoulders – inside bore articulates around pin, outside of plate shoulders articulates inside roller.)

Note lubrication gap through which lubricant must penetrate & disseminate across pin width. Any contamination gathered by lubricant also needs to get back out of this gap, and back out past roller to outside of the chain.... Tricky



Note chamfer on outer plate. This prevents lubrication from also being able to access pin via gap between inner & outer plates, leaving the small gap underneath roller as the only lubrication gap access to pin.



Thanks for reading – stay tuned, Tru-Tension Tungsten Race lube is on test now, and Silca Super Secret lube is high on the list to be done as well as the just launched absoluteblackGraphene