

Zero Friction Cycling



Mspeedwax FAQ

Mini Pre-amble:

The below Q&A can make it seem that immersive waxing is one heck of a complex process with much to take into account. The reality is immersive waxing is extremely easy and quick, however there is probably no area of cycling I can think of that has as much voodoo and miss-information written about it / you-tube vids etc – as well as it simply being a leap into something very different to what one is used to with just dripping on more lube and wiping chain.

In short, it is properly clean chain of factory grease / drip lube which is very easy when following step by step guide on Zero Friction Cycling Website, and from there using re-useable master links, pop chain off and pop in pot and turn pot on, swish around sometime later when wax is melted and hang to set, break wax link bond and pop back on bike. That's it.

It takes on average a total of 5 mins max actual labour time to perform a re-wax, which whilst this may be a few mins more than dripping a lube on and wiping chain – you have no back end maintenance and cleaning to try to stay on top of, your drive train is always clean, and your parts

lifespan will typically double to triple, you have no ongoing cleaning product / solvent cost, or solvent disposal issues. You are running a super low friction chain day in day out.

Below is the most current of FAQ's that I receive each day, have a flick through to find the question you were pondering! 😊

Q) why should I wax vs drip lube?

A) These days there are some excellent drip lubes and some are starting to bridge the gap to immersive waxing, but all drip lubes have a double edged sword that make it very difficult to match waxing for day in day out low friction & wear as well as cleanliness.

Whilst some drip lubes may perform extremely well and low friction when prepped on perfectly cleaned chain for a race – typically lab testing / manufacturer claims reflect this situation only in their performance claims.

Most – I would say 99.9999999% of riders do not perfectly clean their chain every 4 hours. They drip on more lube and wipe chain. For the vast majority of drip lubes, real world friction and those lab results quickly reside in the different postcodes.

In short – with wet lubes airborne dust and contamination sticks on contact so friction will start to increase from km zero.

The top wax emulsion lubes can be highly contamination resistant for a good stretch, but the chain is operating completely exposed, contamination is inevitable, and once it is pressed into set wax, it is land locked in there – adding more lube and wiping will not shift the contamination that has penetrated and been pressed into set lube.

“Dry lubes” like Muc-Off Dry, Finish Line Dry, White Lightning Clean ride & similar contain so little lubricant by volume that you pretty much need to add half a bottle every ride to have half a chance of keeping the chain somewhat lubricated inside where it is needed.

Immersive waxing completely flush cleans and re-coats chain with a solid coating of super slippery wax. For “x” km's after a re-wax, the chain metal is basically left out of it as all parts are sliding on a coating of solid super slippery wax. Simply stay on top of re-wax intervals and change to fresh wax at recommended periods, and you have race day low friction every day, exceptionally low wear rates, along with next to no ongoing drive train cleaning maintenance.

There is a reason why you so often read drip lube manufacturers claiming things like “immersive waxing performance in a bottle” – and that is because immersive waxing with the top known wax (mspeedwax is current proven best) is by its very nature is extraordinarily difficult for a drip lube to match over multiple re-lubes.

If you want to know how clean your chain will look every single re-wax with no cleaning maintenance, simply refer to the picture at top of this document 😊

Q – Can I use a rice cooker or does it have to be a slow cooker?

A – It must be a SLOW cooker.

Rice cookers are tempting because they are cheap and a great size for a bag of wax. But paraffin likes to be heated slowly, as well as not get too hot. A rice cooker will blast heat in like a kettle on cook and this breaks down paraffin’s long chain molecules damaging its lubricity. Then after rapidly heating to 100dg, it then switches to warm. So if you pop chain in and turn rice cooker on and come back sometime later, wax will be at 60dg c, near its point of setting solid again, so you will bring a chain out with far too much excess wax on it making for a heck of mess when first start riding, and it’s a waste of wax.

Do not use a rice cooker – buy a cheap small slow cooker.

Q – What slow cooker do you recommend?

A) Currently the two best options in australia are the Adesso 1.5 litre from Woolworths for \$16 – perfect size for a bag of wax, or Kmart have a lamb shanks 3 litre for \$25. I recommend only going up to about 3 / 3.5 litres max or you will get a very low fill level for a bag of wax that may not cover the chain after a fairly short number of Re-waxes. A smaller pot will ensure chain coverage for the recommended number of waxes.

Q) How long will a bag of Mspeedwax last?

A) ZFC recommends to re-wax by around 300kms (road) and to change wax by 30 re waxes so you should get approx. 8000 to 9000km per bag . If you re-wax more frequently to take advantage of the stupendous longevity benefits this brings – you can increase number of re-waxes per bag as long as your fill level in pot allows for it. When you re-wax more frequently less airborne dust will have penetrated, so you don’t have to change by 30 re-waxes, you can use km’s (approx. 8000km) still as your guide re when to change to a fresh bag. So if you re-wax every 200km – go 40 re-waxes easy etc.

For off road – it is hard to give a km’s or hours guide as the conditions are much more variable – ie dry but not very dusty, or dry but really dusty, or wet but not very muddy the ground is staying generally pretty tacky, or wet and im spraying my bike / chain with a lot of muck etc.

As a general guide still go with approx. 30 re-waxes, but your km's will likely be around half that vs road as you cover less distance per re-wax on average. Again in if in doubt as to when you should re-wax, ALWAYS err on the side of caution – there are huge longevity benefits for re-waxing more frequently vs pushing wax treatment limits.

*Pro Tip – If on strava – make sure you have a bike entered under gear, then add your fresh bag of wax as a “component” to your main default bike. Strava will then track km's automatically for every ride uploaded to that bike from that date – you can check on it any time by checking km's done for the “wax” component. This system wont work if you are waxing many bikes, but if you have one main bike it works a treat 😊

Q) How often should I re-wax?

A) An mspeedwax treatment will be in its ultra low friction zone for up to 300km (Road) and typically 8 to 10 hours in dry but not overly dusty conditions off road. You can go a lot longer, but you do start to exponentially increase friction and wear for every 100km / 1 hour past that.

After every re-wax, all parts of the chain are sliding on a solid coating of super slippery wax. For the first approx. 100km (road), there is literally basically zero wear. I have tested re-waxed on my main training bike re-waxing every 100km and after 3000km (running final treatment for 300km to get an accurate reading), wear on digital chain wear checker was still at 0.00mm.

If you re-wax every 200km – chain and component lifespan are still so long as to be pretty much un-trackable. In fact that I haven't even been able to collate much data as few customers have kept bikes long enough before buying a new bike and starting over, but the few that have chain lifespans have been around the 25,000km mark to 0.5% wear. Yep. Wow.

Re-waxing by every 300km which is ZFC's standard recommendation - the average lifespan for a top chain like YBN SLA is approx. 15,000km to recommended 0.5% wear mark.

Frequently pushing wax treatments to 400km plus this drops to 8000 to 10,000km. Still very impressive by drip lube standards, but not in that astoundingly low wear rate zone that we want to try and keep it.

ZFC's ABSOLUTE TOP WAXING TIP!

The absolute top tip I can recommend if you are even a relatively high mileage rider is to run two training chains on rotation. This has many advantages;

- a) It is easy to stay on top of re-waxing within 300km, preferably even 200 to 250km. Avid riders doing say 400 to 500km a week have a grand time using one chain for Mon to Fri, one for the weekend, re-wax both on rest day. Those doing more sane volumes may simply use one chain for one week, and other chain for next week etc.
- b) It doesn't really take any more time to re-wax two chains at once as it does one chain at once ☺ - so this adds time efficiency to your re-waxing.
- c) Most riders are always going to need another chain sooner or later, so simply pre-buying your next chain costs you no more. If you end up selling bike before having made too much of dent into your training chains, it is certainly not a detriment to re-sale bike with two training chains.
- d) You are now guaranteed to get at least two chains through your cassette, and some cassettes these days are expensive. It is common – especially with many of the most common drip lubes used, that riders zoom past 0.5% wear mark in 5000km ish and then find they need to buy a new cassette for new chain. So even if not waxing – you should always be running two chains in rotation to ensure you will definitely get two chains through your cassette, and this will also minimise chain ring wear, and double your chances you will pick up chain being at recommended wear mark vs being caught out when hammering away at the one chain. When red 22, campy record or AXS cassettes can cost \$300 to \$700 dollars (more for xx1 mtb cassettes) – ensuring you get two chains through cassette by simply pre buying next chain and running two in rotation is just a very simple and cost effective way to save money – and if waxing – stay on top of re-wax intervals.

ZFC has a lot of avid racers (ZFC is a co sponsor on numerous SA race teams) waxing who tend to train 400 to 500km a week. By running two training chains as per above, to date I haven't yet had a racer wear their training chains to replacement mark before they have bought a new bike and started over!

Lets do a quick comparison – Two training chains on rotation with mspeedwax keeping re-wax intervals under 300km = circa 30,000 to 40,000km before needing to worry about replacing chains & cassette.

Within the same period, an average drip lube user getting 5,000km per chain to 0.5% (and many drip lubes come in way less than that....) will equal 6 to 8 chains for the same period, and 3 to 4 cassettes assuming still manage to get two chains through each cassette.

And for that period you have had basically no cleaning maintenance time or cleaning product cost / & disposal.

Depending on what level groupset you run, the savings could literally pay for some nice extra cycling kit, or that new helmet and sunnies you wanted, or take a big chunk of getting that wheelset upgrade or power meter, or go towards a cycling holiday etc, all of which is a heck of a lot more fun way to spend your money vs burning through chains and cassettes (and often chain rings as well with many drip lubes). It is a winning system indeed ☺.

Q) Is Mspeedwax suitable for off-road riding?

A) I've been surprised how often this one comes up. There is no better environment at all to be running a solid super slippery wax vs something that may quickly turn into liquid sandpaper. For road riders they typically enjoy around triple the lifespan for chain and cassette vs average drip lube, but off-road this can be easily 5 to 10 times greater.

Off-road + average drip lube can be a friction and wear nightmare in no time, stay on top of re-wax intervals as per previous question on how often should I re-wax, and the amount of friction, running cost savings and cleaning savings will be somewhere in the vicinity of big to huge to ginormous.

Q) Should I re-wax the master link?

A) Mspeedwax say yes, ZFC says no 😊. The reason I say no is that if staying with my recommended re-wax intervals, there is plenty enough wax on chain itself.

When you wax a master link, as it sets wax will build up at the base of the master link pins. This makes it very hard to push the pin all the way through the chain and ensure it gets into the locking channels. When re-connecting master link, if you only get pin locked into channel on one side, the master link will fail. By not re-waxing the master link, re-connecting is extremely easy and removes this risk factor.

Over the last 3 years and the amount of customers now waxing – ZFC would have accumulated millions of re-waxing km's with my customer base in Australia by now, and I have sold many thousands of re-useable and non re-useable master links. In all that time I have had reported a total of 3 master link failures, and in 2 of those 3 cases the customer advised they were 99% sure they accidentally only locked in one side of the channel based on the way the link bent open on one side only on failure, and one of those they advise they had re-waxed link and that yes they did find it difficult to install and also believe likely only engaged one side of link.

So for easy of popping chain back on and removing risk of engaging one side of locking channel only ZFC recommends **DO NOT** re-wax master link.

Q) What is the difference between re-useable links and single use only links?

A) At this time myself nor anyone I know can tell the difference between an officially re-useable link and single use only link. It is possible that it is commercially convenient to take an ultra safe approach and say links are single use. This not only has consumers possibly buying more links, but it also discourages removing chain for either proper regular cleaning maintenance to greatly extend chain lifespan, or to switch to immersive waxing which will extend lifespan greatly yet again.

For 10 and 11spd there are officially re-usable links such as ybn and wippermann connex, both of which have proven extremely reliable – I have sold probably near 5000 QRS links over last 3 years to waxing customers and in what would be millions of waxing km's accumulatively now across customer base I have had 3 link failures reported. These links have been used across all brands of 10 and 11spd chains with no issues.

For Sram eagle mtb customers they have to use the officially single use Sram eagle link – and waxers re-use these links typically somewhere between 5 and 10 times max to make it waxing economically viable for Sram eagle riders. To date there have been no reported link failures from re-using Sram Eagle links 5 to 10 times(strangely there has been a couple of link failures on a links first use...).

However one has to make the decision themselves to go against manufacturer instructions if re-using to go down the waxing path, ZFC cannot guarantee any link against manufacturer instructions - but to date there have been zero issues reported (and I've had no issues myself doing the above).

For campagnolo 12spd – sram eagle 12spd links work perfectly as the chains are the exact same width (within 0.01mm)

Q) campy 11 spd and master links

A) Campagnolo are the only chain brand remaining not to have transitioned from joining pins to master links, and their instructions make it very clear they do not want users to go down this path.

Their instructions that they include with their chains are also a ridiculously thick book that has probably accounted for a good portion of one of the worlds forests being consumed – its ridiculous and campy need to stop using up an incredulous amount of paper to provide instructions for something as simple as installing a chain, and move instructions online. If you are a campy rider can you please write to Campy and tell them about the internet.

Deforestation issues aside, ZFC has many many campy 10, 11 and 12spd customers merrily waxing using either ybn, wippermann or eagle links and not a single failure with a campy customer to date. It is a bicycle chain, the two ends of which can be joined with a master link just like every other bicycle chain in the world.

Q)campy 12 spd and master links

A) As above – use Sram eagle mtb 12spd links.

Q) Do I need to clean my chain before re-waxing? (ie after initial clean and wax)

A) In most cases no not all. For dry condition road riding or if caught in a light spray, just pop chain off and re-wax. If you have been caught in a solid wet ride, bonus points if you can be bothered to swish chain in and open container of boiling water which will melt off the bulk of wax that has been contaminated by having gritty road water hosed into it. Whilst solid wax is the most contamination resistant chain lubricant possible, water will penetrate right through chain and bring contamination in with it, and the pressures inside chain from rider load will press some of this into the set wax. You can just re-wax after solid wet rides and you will still be well ahead of drip lubes, but you will import a lot more contamination into wax pot vs post dry riding which imports very little.

The same recommendation applies to very dusty or wet gravel / mtb / cx rides. It may seem a bit of a hassle, but compared to what one needs to do to drip lubes to re-set contamination post harsh conditions rides, it is WAY, WAY ahead on time and simplicity, and not a solvent in sight – just boiling water. ****IMPORTANT** – no additives to water – these may form a film on chain and prevent good wax adherence on re-wax.

****Pro tip for dry dusty rides – To avoid faffing around with boiling water rinse, to remove dust from outside of chain, spray a microfiber cloth with WD40. WD40 is a terrible chain lubricant, but a great contamination attractant, and will lift the majority of dust off the outside of chain. Wipe chain after with dry cloth / dry section of cloth, then re-wax.**

****Note – do not put chain into boiling water in a closed container and shake. Shaking very hot water releases steam, the steam pressure will explode the lid off and spray scalding steam and water possibly all over your face.**

Q) How do I know when I should change my wax?

If you haven't been keeping a rough track of how many re-waxes or km's your wax has done, you will know that it is time to change wax when each re-wax is feeling and sounding dry noticeably faster than it used to. This means that over time as each re-wax imports some amount of abrasive contamination, the amount of contamination in wax is reducing treatment lifespan and it is time to change to a fresh bag.

Q) how exact do I have to get the temp? MSW's own website says 90dg Celsius, do I need to get it fairly precise to that temp?

A) For derailleur chains no – derailleur chains have lots of flexibility and space between parts so they are very easy to re-wax. Anywhere between 70dg c and 100dg c is perfectly fine. I recommend just to put slow cooker on low and with lid off, go away and play with something for awhile, come back in

about an hour to swish around and hang to set. If you leave lid on or have on high, set a timer for 30 to 45 mins so you don't forget.

A slow cooker on low with lid off can never ever overheat wax – you can forget about it and leave it overnight and it will be fine. You can forget about it and go on a round the world cruise and it will be fine.

With lid on, even on low if the wax fill level is low and ambient temp is fairly warm – then over the course of some hours the wax may get to a temp of 120dg+ which can damage the wax. On high with lid on it can get to 160dg c and will definitely damage the wax.

Q) Waxing and TRACK Chains

Most track chains are a) Bushing design and b) have very tight tolerances. It is much harder to both ensure factory grease has been cleaned out from between pin and bushing and bushing and roller, as well as ensuring wax penetration in.

Waxing track chains it is best to use a candy / cooking thermometer to take wax up to max safe temp before may start to break down the paraffin's long chain molecules – so bring wax up to 105dg Celsius – ensure chain is in wax for at least 10 mins to be at same temp as wax, and really swish the bejeezus out of it.

At ZFC for track chain prep not only are ultrasonic's handy for cleaning the chain initially, but they are also used as part 2 of the re-wax process to ensure 100% penetration.

On the plus side, a wax treatment for track chains lasts a lot track time and no mess when changing cogs.

***NOTE!! – Wax break in on track chains post re-wax is notably longer vs road chains, and it can take a bit to get rollers moving as there is a big wax bond surface between roller and bushing. If you have a race coming up, ensure chain has had at least 45 mins to 1 hour break in time to ensure all wax surfaces fully broken in and polished.

The YBN SLA 410 chain is a brilliant option, it is the only track chain I know that is a bushing-less design just like derailleur chains which makes them much easier to wax and break in – they are as easy to do as derailleur chains, and despite being much lighter the YBN 410 tested as having almost 1000n greater tensile strength than an Izumi Super Toughness. Izumi chains are notoriously hard to wax and break in due to very tight tolerances. Super tight tolerances are also a concern for outright efficiency out of the box – such chains may need extensive break in periods to hit optimum efficiency.

Q) I have switched to waxing but have noticed some rusting on my chain / cassette – why is this? What should I do?

A) It is important to remember that MSpeedwax is very highly refined to nearly zero mineral oil content, so post wet rides the outside of rollers / chain and the cassette will not have a wet coating of lube to stop oxidation / spot rusting.

Post any decent wet ride, you should at minimum wipe chain and re-wax, or wipe chain and wrap in a dry cloth (never put in plastic, that will act as a humidifier and rust catalyst).

It may seem like a hassle to re-wax post wet rides, but remember – whilst a drip lube may enable you to park bike and walk away – it has just been hosed with gritty water – unless you intervene to properly clean chain to reset contamination, you are more than likely going to be running liquid sandpaper masquerading as a chain lubricant on your next rides in the sun. Re-waxing is whole heck of lot easier and cheaper than doing a full solvent flush clean.

Simply – Mspeedwax is not designed to be ridden in wet and then have chain just parked for days – post wet ride simply dry and pop chain in pot to re-wax – bonus points for a boiling water flush clean, dry & re-wax to minimise amount of contamination imported into wax pot.

If your cassette is spot rusting, then in general you are pushing wax treatments too long. If you re-wax by every 300km as per recommendations, there will always be sufficient wax imparted from chain to cassette cogs to ensure a protective coating. It can be a good idea to re-wax at around 150 to 200km mark the first few times to ensure sufficient wax coating if you live near the sea or on frequently salted roads etc.

Q) What about waxing and All weather commuting?

A) If you tend to ride to work no matter the weather – firstly you rock, secondly – Mspeedwax will of course keep your drivetrain cleaner and lower friction and longer lasting than anything else, you just need to be mindful of not letting an Mspeedwax being wet and exposed to air for extended periods (ie over 24hrs). It can be a great idea to run multiple chains so you can pop off chain that has seen wet weather when get home and wrap in a cloth and pop next chain on, and then wax your 2 or 3 chains at once at end of week.

Also consider having a specific anti corrosion chain on for wet days – you can commute to work via the ocean and those chains will not rust. Using say the YBN super chain (anti corrosion chain) for wet days and then YBN SLA which has highest level of wear resistance treatments to do the bulk of the workload is a great system.

Q) How do I know if I have overheated and damaged my wax?

A) If the wax has been over heated when it cools it will have a distinct yellowish tinge to it. If the wax has not been overheated it will cool to a dark grey, light grey or white colour.

Q) Why does sometimes my wax cool to a grey colour and sometimes to a white colour?

A) It depends on how long the wax took to cool. If you were to turn on and leave on for a couple of hours and turn off – all the moly and ptfе would settle to the bottom and it will set to very white – just the colour of the paraffin. If it is a where you have slow cooker, after swishing chain and turning pot off, the wax will set fairly quickly whilst the moly is still well mixed in the wax so it will set to a dark grey. The different colour tones from dark grey to white are simply how long the wax took to cool after swishing and switching off based on ambient temp on the day of where the slow cooker is sitting.

Q) What drip lubes can I use with Mspeedwax?

A) Typically only wax emulsion lubricants such as Smoove / Squirt and Tru-Tension Tungsten All weather, as well as proper chain coating type lubes that set to a genuine solid such as UFO Drip and Tru-Tension Tungsten Race lube. Likely Silca's new Super Secret Lube as well but at time of writing I have not yet tested to ensure.

For the best result re-waxing over these lubricants the lubricant should be run until chain is starting to sound and feel dry so there is not much of that drip lube left to mess around with re-wax, and really only a max of two or three applications of that lubricant before one should probably do a full clean before re-waxing. The drip lubes are a different type of wax, and they will build up – so if you use often and try to re-wax over the top of a multi layered application of a drip lube, Mpsеedwax adherence to chain may be poor, and you may contaminate the wax in pot to some degree leading to lesser wax adherence than normal going forwards for that batch of wax.

Never re-wax over a wet lube.

Q) what to do for cycling holidays / cycling trips / bike packing.

A) Some customers pack a couple of pre-waxed chains and a bottle of smooove / squirt / tru tension all weather or race lube, or just a single pre waxed chain and the same, and then can re-wax when get home as per above.

Q) What about Mspeedwax and Ultra-distance racing?

A) Whilst you cannot re-wax during and ultra distance race, one shouldn't under estimate just how many hours of riding will be saved by ensuring running a low friction chain for the entire distance of the event versus having a chain turn into a typical drip lube chain situation.

Starting with the lowest friction chain possible that will resist contamination, and then moving to top known drip lube (Tru-Tension Tungsten All Weather, Nix Frix Shun, Smoove) will keep chain in a very low friction running state for around 2000 to 3000km depending on conditions, before it will start to increase from there.

ZFC highly recommends packing a second Mspeedwax prepped chain. One – it is a very good idea to have a spare chain as sometimes it can just take one crappy shift to equal a bent link or snapped chain which can mean a significant time loss, and also swapping to fresh chain around halfway through the event will have you back to a 4 to 5w chain.

Many competitors will be running same chain Flag to flag and depending on lubricant that chain will finish somewhere in the 10w to 15w loss mark easily, and a number of competitors on poorer lube choices will have circa 20w loss chains.

When you are riding half dead on the bike trying to get up a hill or through the wind, you want every single one of your watts pushing you forwards further for the same effort vs being wastefully eaten up by a high friction chain.

The difference in finish time over such a distance will be multiple hours, for many situations it would be over 10 hours difference. 10 hours less riding just for paying attention to your chain friction. Remember your chain is the big easy low hanging fruit of friction savings, eating up at least as much as all of your bikes bearings combined, and poorer lube choices it will be eating up double all of your bikes bearings combined – your chain just has so many moving parts and tens of thousands of link articulations a minute as it runs through your drive train – it simply performs orders of magnitude more work than your bearings that spin lazily in a nice sealed environment.

Your chain and its lube is where it's at for the easiest and most cost effective (in fact cost saving!) mechanical friction savings.

It is well known that pretty much all World record attempts, key TDF stage races, time trials etc are on a wax and powder race chain for ultimate outright friction savings, however many other cycling demographics are playing catch up when it comes to thinking about very easy friction savings that will make a big tangible difference to their race time – however that is changing. What will your competitor/s be running?

Q) I am overall loving the switch to waxing but for my dedicated trainer bike I am getting a bit of build up of wax flakes – is there a way to minimise this?

A) Yes that definitely happens – when you ride outside the excess wax after a re-wax flakes off and blows away, indoors it will flake off onto your trainer / floor. From the floor they are easily vacuumed up, and any build up on trainer itself you can just brush off with a stiff brush, and then vacuum up.

You can minimise the excess a bit by wiping outside of chain with a cloth after removing chain from pot and hanging to set.

Again it may seem like some hassle but excess wax is much more easily taken care of vs properly cleaning a drip lube chain, and you have the low friction and parts lifespan benefits – and having an always ultra low friction chain is a great little zwift trainer doping tactic as more of your watts are making it to your smart trainer!

Q) Why do you recommend mineral turps / metho vs degreaser or petrol / diesel?

A) This is what was used by Friction facts in the pioneering days and continued by Mspeedwax today – it is cheap, simple, and simply works perfectly. Mineral turps is a great solvent and leaves little film behind vs petrol / degreaser for the methylated spirits to deal with (metho is basically pure alcohol with tiny amount of an unpalatable additive so you don't drink it). Cleaning chain is two parts – one getting chain clean, two – ensuring no film left from cleaning so wax can bond to chain metal without having to fight its way through anything.

It is possible that other solvents are just as good, but there is little need to try to test everything when we have a simple, cheap and very effective method already nailed. To date I have been asked about approximately 4.7 billion different methods of cleaning a chain. And if you have ever read a comments section or forum on best way to clean chain, you will find many comments along the lines of “The absolute best way to clean a chain told to me by a pro world tour mechanic is to do a rinse with petrol, then diesel, then detergent and water, then citrus degreaser, then I spin around 3 times and face north and rinse with de-mineralised water, then Acetone..... “

The passion behind “MY WAY IS THE BEST WAY TO CLEAN A CHAIN!!” as well as how on earth some have arrived at a 10 to 20 stage cleaning process and have tangibly assessed it is superior or other vastly simpler processes – it is quite fascinating.

There is simply no need to test a gazillion different methods (and if I tested 1% of the methods asked of me I would spend my life testing chain cleaning and nothing else) when we have a very simple and cost effective method that works perfectly every time, and the chemicals involved are easily recycled.

If something else is used and wax adherence is poor, then it's a bit of a palava as you now have a contaminated wax chain to have to try to clean and wax does not respond to most solvents, and boiling water alone now won't do it as the wax is contaminated with something that won't just melt off. And it is possible the wax in your pot is also now contaminated.

So ZFC **strongly** recommends to just stick with a simple, cheap, easily obtained and 100% effective preparation method. If you have a 20 stage process you are passionate about and must stick with it – no problems, but it's your call, and if your chain is sounding horribly dry after 20km – you will need to reset using ZFC / MSpeedwax recommended method.

Q) Should I clean factory grease off chain even if I am not going to wax but use a good drip lube?

A) Absolutely – factory grease is for packing. Factory greases typically range from relatively high friction to very very high friction (sram's factory glue). Factory grease's are also contamination magnets and so your chain will gather a lot of abrasive contamination very quickly, and the factory grease does not mix well with the top know drip lubes.

Always either clean factory grease as per instructions with mineral turps and metho and then start with chosen lube, or – best is to start with pre ultrasonic cleaned and mspeedwax prepped chain.

Any good lube can be added straight over the top of an mspeedwax treatment, and an mspeedwax treated chain will also provide lubrication protection for wax emulsion lubes that have some initial penetration issues.

And as per previous, a pre treated chain from ZFC also provides a much better solvent footprint vs doing yourself in your backyard, and the extra cost vs buying the solvents and doing yourself is very small.

Q) I have cleaned chain properly as per instructions on wax zen master guide, but my chain feels and sounds drier much more quickly than expected, what has gone wrong?

A) Is the chain a shimano or kmc chain? (answer is almost always yes). Different chain brands use different low friction coating treatments. We have found that shimano chains coatings repel wax based lubes a bit, making them feel drier more quickly than most other brands, and most KMC chains feel very dry very quickly – I have test ridden some myself that feel as dry straight after a re-wax as other chains feel after 300km of riding. Other brands coatings the wax adherence is very good – YBN / Campy / Sram.

It will improve over time, just unfortunately re-wax more frequently – and consider a second chain in rotation to make it easier (one that gets along most excellent with wax).

The issue isn't just with immersive waxing either – it was found during chain longevity test projects that some chains coatings tend to shuck off some lubricants much faster than others, so many top wax drip lubes / hydrocarbon based lubes will also have a lesser treatment lifespan. Both Shimano and KMC have proven to typically be very fast chains – but just take note of re-wax / re-lube frequency to avoid dry feeling chain and also to ensure maximum chain lifespan – wear rates and friction will increase when treatment is running thin.

Q) I have re-waxed my chain and a roller off the end of the chain is missing?!

A) This is rare but can happen if wax gets good and hot, you give the chain right ol swishing, and the chain is starting to get a bit worn and parts a bit looser – a roller may come off the end of your chain that is “on the whip” so to speak when swishing.

No fear – it is in your wax pot. Melt wax, decant into an aluminium bbq tray, retrieve roller and put back in between links, pour wax back into pot.

The very small chance of this happening can be negated by simply popping a paperclip through end of the chain that will be whipped around the most during swishing.

Q) What is the difference between candle wax / cheap paraffin online vs MSpeedwax? I know MSpeedwax has some go fast additives in it but it costs a lot more?

A) Candles / cheap paraffin have a very high mineral oil content of typically around 7%. This means it will get quite gunky quite quickly, and this gunky part will gather more contamination more quickly, so the wax in the pot will become contaminated much more quickly as well. The base wax in MSpeedwax is the highest lab grade paraffin available which is refined down to practically zero mineral oil content. You can literally eat this base paraffin with no ill effects. This lab grade paraffin is expensive, I have looked at this lab grade paraffin from Norco chemical supplies in aus, and 1 lb bag of just the paraffin costs more than a 1lb bag of MSpeedwax.

Over the years I have had A LOT of home waxers using candles / cheap paraffin try mspeedwax. The fact they keep ordering mspeedwax shows me they don't go back to the cheap stuff. I have also seen

many home wax chains, and most are not a good look. If you listened to a recent Nerd Alert podcast on Cycling Tips – their go to mechanic Zac was anti wax because he had just seen too many “waxed” drive trains so gummed up they wouldn’t even shift gears or be able to shift into the 11t cog etc.

A lot of the voodoo and poor miss-conceptions re waxing come from the cheap backyard wax methods that one see’s on you tube etc, and overall it can give waxing a bad rap which leads to many people being turned off and missing out on saving a veritable shipload of friction and wear every ride, as well as all the maintenance savings.

Make no mistake, the difference between the majority of home blends & Mspeedwax is night and day.

Q) Should I add paraffin oil to it? I’ve heard it makes it last longer?

A) Adding paraffin oil will make an mspeedwax or other paraffin wax treatments last longer, but it will completely undo the unassailable advantages of immersive waxing and running a super slippery solid lubricant on your chain. Not only do you re-introduce viscous friction and increase stiction which are two of the key area’s where solid wax has an efficiency advantage over drip lubes, but by having a wet lub on top, every airborne particle will now stick on contact just like any other wet drip lube.

Outright longevity per treatment is not mspeedwax / highly refined paraffin wax’s main brief. Ultra low friction, parts wear rates and cleanliness is what it delivers – adding paraffin oil will destroy that.

Don’t do it.

Q) have you tried Steve from Oz cycles wax blend and what do you think about his video where he shows his blend had lower wear than mspeedwax, the mspeedwax chain was rusting, and there were metal particles caused by moly being corrosive

A) yes I have and that video was a bit of a nightmare of a lot of hard effort to unfortunately produce a bunch of terrible conclusions.

- Real world riding has so many variables (load / contamination exposure / re-wax frequency at same km’s & load and contamination exposure etc) that one would need to repeat test for both waxes across many chains and average the results to get a very ballpark end result for both lubricants. It is not remotely accurate as a proper controlled test – one where load is controlled for the same time and distance

per interval, re-lubes / waxes are done at the same point, contamination introduced is the same type, and at the same time, and the same amount etc etc.

- Can you think of any other type of test where so many key variables are run completely uncontrolled, that would be accepted as a valid test?
- The fact the mspeedwax chain was rusting shows that he was not re-waxing frequently enough. MSpeedwax being so highly refined to have no mineral oil content means you need to re-wax at correct intervals, there is no oily coating to protect against rusting if you go too long between re-waxes. The rusting mspeedwax chain is huge hint as to why the mspeedwax recorded a higher wear rate vs his wax blend. I have been waxing for nearly 100,000km now, and have never had a chain rust, because I re-wax at the correct intervals.
- Lastly – the theory re moly causing the metal particles due to being corrosive is just way off. Moly is proven outstanding friction modifier and is used in many industrial applications. The presence of metal particles would likely have been from excessive wear periods when he has pushed waxed treatment far too long (like when it is rusting) leaving chain with basically no lubricant inside, and a resulting metal on metal wear.

Previous videos by Oz cycle on immersive waxing have included things such as dunking chain in cold water after removing from wax pot to “lock in as much wax as possible” – which is a terrible thing to do as the pressures inside chain when start pedalling will simply press all this excess wax out making a big mess. After 10 mins of riding you will have the same amount of wax inside chain whether you “Lock in as much wax as possible” or hang to set as is on a 40 degree day.

It seems like Oz Cycle is genuinely trying to add good value to his viewers but unfortunately a lot of his testing – whilst it gathers great support due to the sheer amount of time and effort put in – it too often simply arrives at the wrong conclusions due to lack of proper understanding and testing that has far too many uncontrolled variables.

So whilst well intentioned, I do worry that incorrect information can sometimes do more harm than good. I have lost count of how many people I have spoken too who have tried home waxing following Steve’s video’s, had a terrible time of things, thought waxing was pretty terrible, told all their friends it was pretty terrible, as well as any mechanic seeing those drivetrains would also think waxing is pretty terrible. It is just not a great situation.

The results and conclusions in that video when you take into account the above – show how easy it is for testing to seem on the surface to be very good – when in reality it was simply miles off on pretty much every outcome. And there are far worse video’s re waxing and lubes on you tube than Oz cycles.

Sheer input effort and hours isn’t enough – if you are putting out information to thousands of viewers, you have a responsibility – a big one – to ensure the accuracy of what you are reporting.

If I conduct a test and the results are a bit interesting, I contact the manufacturer / re- run test / both.

Where was the contact to myself re the strange test result, rusting, postulation re moly and corrosion wear? – There was none. Where was the contact to Mspeedwax? There was none.

Just skipped straight past go and jumped onto a bandwagon of incorrect postulations and conclusions that suited his own personal outcome. Fancy that.

Remember I do not care who makes the best lubricant – I test to find the genuine best, and if it is – I stock it.

I offered Steve to send me a batch of his blend for control testing – he said he would, it has never arrived –that was many months ago at the time of writing this FAQ.

I have had a number of Oz Cycle backers say “but he doesn’t sell that wax, he has no vested interest in it!”

Yes he does. It is his recommended product, from his supposedly amazing knowledge of chains and lubricants. It is his apparent great free knowledge that he has many thousands of you tube subscribers. This brings him advertising revenue. The more he can wow you with his in depth testing and outcomes, the more shares, the more viewers & subscribers, the more money he makes.

If he is not selling a product, but making money, YOU are the product.

If all the above seems a bit harsh – Remember I work hard to improve the amount and QUALITY of information available that will genuinely save you watts and running costs. If video’s are being pumped out that undermine this and add to miss-information, it is obviously frustrating.

Zero Friction Cycling’s business model is very transparent – use the worlds most exhaustive controlled testing to find and stock the genuine best in class products.

If something was better than Mspeedwax, that would be what I recommended as number one, simple as that. If a drip lube was better I would simply stock that and recommend that as number one – as you can see, the support required around immersive waxing can be high – I often spend up to two or even three hours every day answering emails for questions about waxing. I would be lucky to spend 3 hours a month answering questions about the drip lubes I stock. Life would be easier if a drip lube was numero uno, and if an easy and cheap to make home blend was better, I would be making it and selling it.

Re the part re have I tested that blend by Oz cycle?

- A) No – As above I did offer to test, but it was never sent. At the time of writing I have over a years worth testing that is “urgent” to get done. Similar to the number of questions I am asked re chain cleaning, I am also frequently asked with regards to so, so, so many different blends and variations of wax / lanolin / bee’s wax and on and on.

Unless the base wax is lab grade paraffin, based on what I know from a fair bit of time concentrated in this space over the last few years – it simply will not be as good. The base for Steve’s wax is a much cheaper paraffin, it will be longer lasting per treatment vs the very highly refined lab grade in Mspeedwax, but it will not remain as clean or low friction – this is something I have seen countless times with countless home wax blends along the same lines – again I could spend my entire life testing home wax blends – to what end?

As long as the wax base isn’t too terrible and one avoids silly things like adding paraffin oil, then many home wax blends may well outperform a lot of the typical drip lubes stocked on shelves of your LBS, but they won’t match Mspeedwax for all the reasons above. If you want a less refined wax for its greater longevity and oily protection against rusting – then you can absolutely go forth and easily make your own and have a good time – but it is simply not a level of product that ZFC needs test – there is much more highly valued testing to get too asap vs a never ending stream of home blend variations from you tube.

I would recommend that when it comes to lubricant testing and immersive waxing, for proper independent information refer to the original Friction Facts / velo lab testing as well as Zero Friction Cycling testing and detail reviews, and be wary of low grade testing with huge uncontrolled variables on key aspects of the test, regardless of how many hours of effort were put into the test.

Finally - Is wend wax the same as immersive waxing?

ZFC recommendation at this time of writing would be not to consider Wend Wax, initial testing results, as well as communication with Wend, have come out very poorly indeed.

Wend hit the marketing hard stating “Just rub wax on outside of chain and have a race ready chain in seconds!”

If you rub a solid lubricant on the outside of your chain – you have a solid lubricant on the outside of your chain, no matter how you try and massage it. Massaging it may help it get a little bit inside rollers, but it will not penetrate at all through to the pin. The first test following instructions to the letter showed wear rate basically exactly the same as chain strip cleaned and run without lubricant.

Then wend came out with “the advanced application technique” where one now dissolves the wax in with their own special solvent. This did work, sort of, but it was very average vs good lubricants re wear rate, and chain & drive train becomes very gunky over time with wax that almost needs a chisel to remove.

And, I don't yet understand why one would spend more money, to mix their own wax drip lube on the go in a fatty multi part process, when you can simply buy a vastly better pre-mixed wax lube like Tru-tension Tungsten All weather, Swoove, Squirt etc.

Then Wend came out with colours, and dismayed the market went wild. I had hoped the market was smarter than this by now. Dear me.

To actually have your coloured drive train and some lubrication you need to;

- Rub on coloured wend.
- Dissolve wax in with their wax off solvent. This will dissolve the colour.
- Allow chain to dry
- Rub coloured wax on again to get your coloured chain back.
- Enjoy about 5 to 10 minutes of a coloured chain.
- Enjoy a massively over waxed chain and gunked up drivetrain. Prepare hammer and chisel.

I have also sent wend factory wax chain off for outright efficiency testing at wheel energy, as well as seeing the same testing by Ceramic speed, both results were similar, but the friction loss result was so high I am double checking before I go to print.

They now have I believe a hot melt wax out and a liquid wax version out – I will get to testing and hold onto my hat re how it goes, but until it is independently tested and proven, based on what results and marketing vs reality to date, I would really, really think about that decision. Take a moment and think about the marketing vs what can possibly be occurring with solid rub on stick and the deep internals of your chain. It's your drivetrain. I know what I'm running on mine.

*****Do not put a wend wax chain in a pot of Mspeedwax*****