

Zero Friction Cycling

CHAIN Cleaning Prep FAQ Guide

Brand new chains – FACTORY GREASE

Prelude – There is still a lot of incorrect information being pushed by some major parties (who absolutely know better but have their own agenda – one which is not in your benefit but theirs) driving a message that the best thing you can do is leave factory grease on.

I will not bog down this FAQ document with the huge amount of PROVEN information (by multiple independent parties) that this is THE WORST ADVICE – if not already out when reading this document, a ZFC youtube episode will be covering this specifically shortly.

The short version is that top known lubricants factory grease is a) a lot slower, and b) IT IS A CONTAMINATION MAGNET – quickly becoming an abrasive paste and c) it does not mix with top drip lubes – ie if you add top wax drip over the top, you just end up with a gunky horrible mess of incompatible lubricants.

Major brands sell their factory grease as some wonder lube as part of marketing, and there is a misconception pushed that the only time a lubricant can penetrate completely is at the factory. This is completely incorrect on both fronts, road chains especially with most lubricants have no penetration issues to completely lubricate all parts deep inside the chain, and whilst factory grease in itself may be a high-quality grease, it is still multiple watts slower than top known drip lubes, but again the worst part is its extreme contamination gathering – it will quickly become an abrasive paste.

Those selling factory grease as a top way to run are doing so to make money (GMBN for sponsorship money, kmc / shimano as part of marketing. It is does

not hurt them if you have to buy another new chain faster due to high wear vs top known chain lubricants).

I cannot stress strongly enough that the cleanliness and parts longevity of the top known lubricants vs factory grease is simply many many many times greater.

Factory grease has to go. Anyone telling you different either a) has not updated information on chain lubrication since about 1990 or b) is towing a company line or (nick Murdock -shimano) or getting paid a lot of money to say so (GMBN with kmc sponsored content). Such actions are leading to a very premature death of tens of thousands of drivetrains around the world every year (probably hundreds of thousands) vs if one had cleaned off a used and proven top lubricant. This is very expensive for users, and just flat out wasteful of resources used to make ones lovely drivetrain components. Shimano / kmc and GMBN need to be held more accountable for knowingly pushing BS recommendation. This is on my oh so long to do list, but it will be done.

You can help me out by calling out BS on articles / podcasts / forums (respectfully please), and I need to get myself a good conversation with Nick Murdock of shimano.

Right – k sorry, so much for not bogging down document – just the driving of this extremely bad drivetrain killing advice is driving me slight mad as it is the antithesis of what I work hard at every day re IMPROVING the information for cyclists to make lubricant decisions that will greatly extend their drivetrain component lifespan, as well as greatly reduce / eliminate the need for solvent / degreaser / chemical use to maintain ones drivetrain – the top known lubricants can often need either zero cleaning maintenance once initial switch done, or occasional boiling water flush cleans – no solvents. Some may need solvent cleaning but very little and less frequent vs meh or poor lubricant choices (like keeping factory grease on).

Ok – so, hopefully established, factory grease has to go, and it is VASTLY better if you do this as step one before using chain.

Q) What should I use?

- In Australia - Mineral turps and methylated spirits – cheap, clean, very low toxicity, no hydrogen embrittlement.
- Some degreasers / petrols etc – may cause hydrogen embrittlement / corrosion stress cracking
- If unsure – take Australian mineral turps and methylated spirits material safety data sheets to your local hardware store in your country to find what your countries equivalent is.

Q) How many rounds and how many ml of solvent?

PART 1

- Shimano / KMC / YBN chains – 3 x 250ml per chain agitated solvent baths. **15 minute soak on bath 1**. Shake in sealed container for 2 mins per bath.
- Campy chains 4 x 250ml baths (same 15 min soak bath 1)
- Sram chains 5 x 250ml baths (same 15 min soak bath one).

NOTE – Final 2 rounds solvent can be kept in separate bottle to use as first round for next chain

Grease soaked initial rounds should be kept in container, labelled with solvent used, and do an annual run to your councils /states hazardous liquid disposal facility

I am often (as in OFTEN) asked are other cleaning agents – the list is endless – shellite / petrol / diesel / simple green / detergents - the list is endless. Some are needlessly more expensive vs turps and will not do any better job, some will maybe clean ok but leave a much heavier film behind for part 2 to deal

with (petrol / diesel) and some solvents may cause corrosion stress cracking / hydrogen embrittlement if soaked too long.

Hence good old mineral turpentine – organic solvent, - great strong but low toxicity solvent, does not cause hydrogen embrittlement, is easily recycled, has low environmental toxicity if not properly disposed, it is cheap, and it leaves little film behind. Some through forums end up on what to me are frankly nuts procedures of “THIS IS THE BEST WAY TO CLEAN A CHAIN – I use X followed by y followed by z, and on and on and on – and normally after all that they didn’t ensure no film left, and the prep was crap.

Stay with what is known to work perfectly every time. I prep THOUSANDS of chains per year, and have attained my knowledge from others who know a lot more than me. So choose between this, or whatever whackadoodle advice you find on forums, or mechanics who were taught by X world tour mechanic in 1990 and not updated their chain & lube knowledge since.

UFO CLEAN – the only exception to the above is UFO clean – it is a 100% environmentally cleaner – but – its obviously much more expensive, AND REMEMBER whilst the cleaner itself is environmentally friendly, what you are cleaning off is not, so still dispose properly. I recommend UFO clean for MAINTENANCE of certain top lubricant chains only due to cost.

PART 2

Chain cleaning for top lubricant or waxing is always a 2-part process. Part one is cleaning chain. Part 2 is removing any film left behind from cleaning so that lubricant / wax can bond to clean and clear chain metal. If it has to fight through a film, result / experience can be poor.

RECOMMEND METHYLATED SPIRITS – this is basically just pure alcohol – it is cheap and does the job perfectly.

- Complete 3 x agitated cleaning baths – 250ml per bath, 2 mins shake per bath.
- Dry chain (hang to dry or blast for a few mins with hair dryer or heat gun in a small aluminium BBQ – careful chain will get very hot. Heat works much better vs air compressor as heated chain evaporates methylated spirits from deep inside chain in a just a few mins.
- Immersive wax or apply top recommended lubricant.
- ****DO NOT LEAVE A STRIPPED** clean chain exposed to air for longer than 12hrs or rollers may start to rust. If you are not / cannot lubricate after cleaning for some reason, wrap in a microfibre cloth. This will give you a few days protection – but do not leave longer than that.
- ****Keep final 2 baths in separate container for bath 1 next chain****. You can dispose of methylated spirits onto a weed no problems, it is extremely low environmental toxicity. Do not pour down drain.

ALTERNATIVES – YES you can use ACETONE or ISOPROPYL ALCOHOL as the finishing rounds – they work perfectly, they are just a lot more expensive vs methylated spirits, and acetone is much more fuming – done breath in the acetone fumes. Methylated spirits / ISO low fuming and no issues doing normally (ie not burying face into the process as breathing hard and fast to maximise fume consumption, which would be weird behavior whilst cleaning a chain.

If you want to know re ultrasonic cleaning (YOU REALLY DO NOT NEED ONE. AT ALL) then refer to race chain and ultrasonic guide.

DO NOT DO A CHAIN BREAK IN RUN UNLESS YOU HAVE AN ULTRASONIC AND KNOW HOW TO USE IT -as per above mentioned guide. Break in runs are only for prepping fully optimised race chains, and unless have proper use of a good ultrasonic, the contamination brought in by riding factory grease during break in run will undo any benefit as agitated container baths cannot clean perfectly into all tiny nooks crannies and fissures of a chain.

Unless following the guide, with an ultrasonic (using properly – most do not know how to use properly) – recommend do not do a break in run before

cleaning. Clean chain from new (straight off new bike, or straight from packaging).

Existing used chains

Once you have ridden a chain (new with factory grease, or existing drip lube chain), note that the process is the same as above in cleaning new chains – you will do rounds of cleaning with mineral turpentine followed by methylated spirits – however the amount of mineral turpentine baths you need to use will greatly increase.

It is common to need to use 3, or 4, or even 5 litres of mineral turps to clean a chain that has been ridden with factory grease or many other drip lubes on top of factory grease.

Basically you put turps in, lid on, shake, turps will go black in 10 seconds, pour out – wipe chain and container, repeat, repeat repeat.

Over the baths the turps will move from black to dark grey to light grey – when turps is basically coming out as clear as when it went in, the chain is clean, and time to move to methylated spirits baths.

As the amount of solvent required to clean a used chain is so high, one has to weight up;

- **How many km's have I ridden**
- **What lubricant has been used?**
- **How expensive is the chain?**

There is no hard and fast rule. If one has ridden 1000km on an ultegra chain with factory grease then meh random drip lube – is it worth putting 4 litres of

turps and 600ml of metho through that chain, which will already have a compromised low friction coating and some level of wear to chain already occurred on that cost of chain, or is it worth moving a brand new chain to the correct start and top lubricant. Vs wasting chain you can just stay the course on existing chain but replace early so as to ensure no premature wear to cassette / rings.

Vs if you have a \$150 axs road chain or \$170 xx1 chain which are very durable chains – the cut off time where it is viable to properly clean to run a top lubricant choice is much longer.

The main thing to be aware of is simply that once ridden, vs circa 750ml or 1 litre of turps for a new chain, it is going to be many litres – so weigh up cost of doing that especially if chain has already had some decent km's and some wear on it.

[Can I clean chain on bike with a degreaser / solvent spray?](#)

Many products / video's etc will demonstrate cleaning chain on bike.

ZFC does not endorse trying to properly clean a chain on bike at all. If you try really hard, you will maybe not do a terrible job, but you definitely will not ensure perfect prep as per the off bike instructions above.

Factory grease is stubborn stuff, and even a heavy spray application of something on bike, maybe you are putting 50 to 100ml of solvent through chain, that mostly runs straight through. On bike is just simply nowhere near as effective as soaking chain and flushing hundreds of ml of solvent through chain.

Existing chains, if you watch ZFC channel episode on maintenance level 1, you will see just how much solvent is needed to clean – you cannot effectively fully flush clean a used chain on the bike. As part of general maintenance if continuing to use a meh drip lube – sure – any flushing out of abrasive

contamination is better than not doing – but vs FULLY resetting chain back to near perfectly clean to move to a top known lubricant that will need to bond to clean and clear chain metal to work as designed – on bike just will not cut it.

Learn to remove and install your chain, a) so you can clean / maintain properly, and b) with chain off you can then quickly spin crank with your finger and feel how bb bearings are – so many times with customers bikes when cleaning up ready for new waxed chain, when pop existing chain off the bb feels like something Fred Flintstone made, check pulley wheels and find one barely turning, you can spin back wheel and hold axle / Quick release and feel if bearings are silky smooth or rough / dry – in 30 seconds with chain off you can check that all as well with many area's you want spinning nice and silky smooth. When chain is always on – often bearings start to go / or have gone – and cyclists just never know they have 5w more bearing friction than they should.

****THE MAJORITY OF BASIC / MEDIUM LEVEL LBS services do not touch bearings – not even a re grease.

Getting that basic knowledge yourself of how to remove chain for proper initial prep/ on going maintenance depending on lubricant choice, along with regular simple checking of how bearings are feeling – will not only ensure your bike rides like smooth silk all the time vs gradually becoming a draggy machine that slowly crept up on you – it can also save you a lot of money by maintaining bearings vs ruining and replacing them.

[Shouldn't I do a chain break in? I saw a video re doing a 400km break in for new chains?](#)

No. Whilst a break in IS part of a fully optimized race chain prep, it is a precise process (nowhere near that length!! And obviously done in extremely clean indoor conditions – ZFC and others who prep fastest chains in the world run extremely high-quality industrial air purifiers 24/7 where break in machines are run).

This particular video advising that – what proven data is this based on? Absolutely nothing. It is made up advice, again, based on a guess, and nothing more. This channel would not know at all if a break in should be 20km or 100km or 200km. He doesn't know that it varies by chain brand due to differing tolerances and coatings. It is simply a guess pulled out of you know where.

If you are wanting to try to prep you own fully optimized race chain – pls refer to the Race Chain and Ultrasonic Guide on ZFC website – instructions tab.

In short – unless you have an ultrasonic (a decent one really helps vs a cheap one), and you know how to use it – then a break in will be of zero use – the contamination brought in during break in will typically outweigh the benefit of the break in unless you can properly ultrasonic clean.

There will be no harm and possible benefit for doing a short (15 to 30min) break in on an ergo indoors – but no more than that – and increase mineral turps cleaning rounds with 2 or 3 extra cleaning rounds, and REALLY shake the bejeezus out things for a couple mins last few rounds.

But really – rather than half arse it – if you are looking to do your own optimized race chain, ZFC supports you – and that's why I have a specific guide re how to do this – follow that guide – beware of information that is pulled out of goodness knows where on unfortunately oh so many channels on the ol interweb.

Q) Do I need an ultrasonic cleaner?

No. For everyone that is simply looking to do a brilliant clean and prep of their chain for a top lubricant choice, simply follow the instructions above, and all will be perfect.

If you are looking to prep a fully optimized race chain, follow the instructions in the race chain and ultrasonic guide.

If you are staying on wet lubricant, an ultrasonic can make a great addition to your workshop as the best possible periodic maintenance (once you have learnt how to use properly by reading above guide), for those on top known chain coating type lubricants / waxes then you need either no periodic cleaning maintenance, or just boiling water for some – or boiling water / UFO clean for some if wanting to really go to a top level – refer to cleaning maintenance level 1 video on ZFC youtube channel.

Maintenance of your chain does vary depending on your lubricant choice. This is rarely (if ever) covered. Typically, other information will have maintenance recommendations that are the same regardless of lubricant choice. Again, such information is simply way off. Maintenance of a wax lube is completely different to a wet lube same as you wash your crystal glassware different to how you clean your BBQ. It makes zero sense that completely different types of lubricants would be cleaned / maintained via the same method / products.

Follow the information on ZFC youtube chain of chain maintenance level 1 (episode 3).

Q) what about UFO clean?

Alrighty it is fun to then completely contradict oneself every now and then 😊.

Despite the advice above, after detailed discussion with the PHD chemist who developed UFO clean, this product is designed to effectively clean both wet lubricants AND wax lubricant products.

However – it is expensive – so, still the above applies – if one is maintaining a wet lubricant chain, personally I would still use turps as I can pump litres through chain quickly at low cost, vs \$35 to \$50 a litre for UFO clean. So yes, it

will do wax and wet lubes, but..... if I was me, I would use turps and metho still for wet lubes, and ufo clean for wax chains only.

Following the instructions on the ZFC youtube episode 3 on basic maintenance, a bottle of UFO clean will last for many many cleans of a wax lubricant chain (boiling water flush rinses first, dry, UFO clean soak, shake, boiling water rinse, dry – re-wax / re chain coating or wax lube application – easy as, very cheap – keeps chain super low friction and wear – important to do mostly after wet rides as water brings a lot of contamination deep into chain. One should ALWAYS reset contamination post any half decent wet ride or you will pay the piper in friction and wear of your chain and then drivetrain components).

Q) I like the idea of immersive waxing / regularly removing chain for proper maintenance – but am unsure what to do re master links?

A good question / thought – I am getting a lot of enquiries re master links now re this, and especially as things have become more proprietary with 12spd chains – as such I have a separate master link FAQ guide up now to cover this, so rather than make this doc too long, if you have questions re master links, pls refer to Master Link FAQ guide on website – instructions tab (same tab you found this document in).

Happy chain prepping for low friction, low wear, drivetrain silk lightning awesomeness!!