

Frequently Asked Questions

Q: Lineside treatment is more effective.

A: It is not. Direct chemical treatment of boiler water can totally solve fouling, corrosion, caustic embrittlement and steam contamination problems. Lineside treatments can only ease the problems of fouling and caustic embrittlement but can not deal with corrosion or steam contamination. To read more justification click [here](#).

Q: What happens to all the mud and clay build up? Surely this would make it impossible to run for very long without a washout?

A: Any solids which would have formed muds or clays will either going into solution (due to the alkalinity) or will going into suspension in the boiler water. However those particles in suspension, again due to the alkalinity, form a totally mobile sludge which moves with the slightest water current, even when cold. It is not in any way adherent. Under high steam demand, and thus rapid boiler water circulation, this sludge fully mixes with the boiler water and appears as a brown colour in the gauge glasses.

Q: What happens to all the scale which would normally form in the boiler?

A: It is dissolved in the boiler water or precipitates out as part of the mobile sludge which forms.

Q: Won't my boiler leak with no scale present?

A: Initially maybe, but a scale-free boiler can be made leak-free by a good boilersmith. Minor leaks will be plugged by the tannin in the treatment. Also it should be remembered many leaks are actually caused by scale, which has led to localised overheating, or corrosions. Even a "traditional" boiler of riveted and expanded construction ought to be leak-free and PT will make sure no localised overheating or corrosion will ever occur to cause leaks.

Q: Won't the high alkalinities cause caustic embrittlement?

A: Caustic embrittlement is a complex problem with multiple causes. The use of specific tannins have been shown to prevent it. Additionally leak-free boilers allow no opportunity for caustic embrittlement to occur.

Q: Aren't high alkalinities are dangerous?

A: History does not show the risk to be serious if simple maintenance and operating policies are followed.

Q: I use lead fusible plugs. Is this OK?

A: No. Lead is rapidly eroded when alkalinities reach or exceed pH12. A number of alternatives are available:

- Lead/tin alloy plugs which give a 90+ day life and longer with copper electroplating on the water side;
- Copper electroplated (on the water side) pure lead plugs;
- Drop (button) plugs.

Q: Can I use lead mudhole door seals?

A: No. Lead is rapidly eroded when alkalinities reach or exceed pH12. An alternative must be used.

Q: Doesn't high alkalinity dissolve brasses and bronzes?

A: Only up to a point. Experience shows it is important to not have leaking valves situated below the normal water level. Such valves seats and stems, where made of brass or bronze, should ideally be substituted by stainless steel or other alkaline-resistant materials. Note ONLY the seat and stem need replacement. Erosion of the component body will be very slow indeed.

Q: Doesn't high alkalinity dissolve glass, i.e.: gauge glasses.

A: Silica is dissolved gradually by alkalinity. Correct maintenance policies based on inspection on set days in steam will prevent problems from occurring with tubular glasses. It is best to use reflex glasses if possible. Failures of these flat glasses are virtually unheard of. The ability to dissolve silica ensures silica scale does not form on boiler surfaces.

Q: Why should I care about steam purity?

A: Because it leads to salts being deposited in the steam passages causing accelerated internal corrosion and hot spots (failed superheater elements, pipes etc). It leads to solids being carried to the valves and pistons acting as a grinding paste when mixed with liquids and it leads to contaminated and thus compromised lubrication. All these are equally true for any auxiliary item of equipment that use steam, e.g.: air pumps, generators etc..

Q: Boiler tubes are a consumable item so what does it matter?

A: They need not be! PT offers a 20+ year life from boiler tubes where regulation so allows. The lack of corrossions and thermal fatigue failures also, of course, extend to all other parts of the boiler. Corrosion prevention is just one part of the overall benefits available from using PT.

Q: Why would I use something experimental on my loco?

A: PT is no experiment. It is a fully developed water treatment based on highly successful previous treatments – notably TIA, Alfloc and Dearborn. It takes these further due to improvements in the understanding of various phenomena and the availability of more effective and relevant chemicals. It should also be remembered PT was developed on locomotives for locomotives.

Q: Why is the water source is of no concern at all?

A: The high alkalinity created acts as a buffer to incoming water variation.

Q: Is it complicated to administer?

A: It is not. A pre-prepared chemical mix is added to the locomotive's tank to treat the water on a regular basis. Long periods of standing without operation of any injectors will reduce the active antifoam concentration below safe levels. In such cases extra antifoam may be required depending on operating circumstances.

Q: It sounds complicated to monitor?

A: It is not. Only two boiler water parameters are to be measured and only a few remedies to incorrect conditions exist; these being blowdown and alkalinity regulation.

Q: How often should a loco be blown down?

A: This depends on the results obtained when monitoring the boiler water. A few times per annum can be said to be normal.

Q: How often should a loco be washed out?

A: This varies and is results-driven. Once a year is fully possible when the treatment is operating as a preventative one rather than a corrective one.

Q: What is the difference between a corrective and preventative application of the treatment?

A: In application terms basically nothing. A treatment period will be seen as corrective if scale and corrosion are present in the boiler from previous use. Treatment in a boiler using PT from new or containing no scale or corrosion will be preventative. In these circumstances there is nothing from past incomplete treatments to correct.

Q: What happens in feedwater heaters?

A: These should be as clean as possible to start with. In time they will be descaled and corrossions will be prevented but it will be a slower process than in the boiler. New items will remain scale and corrosion free.

Q: Does PT stop corrosion and scale in water tanks, pipes and injectors?

A: Yes. Old scale and corrosion will be treated over time but this can be a slow process due to the much lower levels of chemical concentration in these parts.

Q: Our locomotive stands idle for several months every year. How does this effect an application?

A: No problem! PT treated water should, where frost is not going to be a problem, be left in water tanks and boilers. It continues to work when a locomotive is not in use. Thus it is much better to leave tanks and boilers filled rather than in empty and so-called "dry" conditions.

Q: Would PT treated water descale and treat corrosion if left standing in a boiler or tanks when not in use?

A: Yes, absolutely. The period of time to fully correct such problems is hard to predict as each case is different, but the effect of such a treatment period will only be positive.

Q: Is the regime identical for boilers with copper fireboxes and/or tubes?

A: Not quite. There are a couple alterations with a lower TDS and pH required but that is about it. Dosing and monitoring remain the same whilst results will be little different.

Q: Is Porta Treatment OK with brass tubes?

A: No, **Porta Treatment** can not be used with brass tubes.