



To Clean or Condition

by Form 19 staff member

How and how often do you clean the track on your layout? Do your trains run smoothly and consistently? Layout performance is certainly dependent on the rail-wheel interactions just like on the real thing.

Perhaps you shouldn't clean your rails. Maybe you should 'condition' them.

First, the disclaimer – neither the *Form 19*, it's staff, the Officers and staff of the Hudson Berkshire Division, nor that of the NMRA make any claims about, recommendations for or the suitability thereof of any specific materials for use on your railroad. So the following information is presented solely for your consideration.

The back story: I was recently asked to help with an auto tail light problem – tail light would not work and directional would not if headlights were on. Bulbs checked out 'OK.' Connections inside the light housing were 'OK.' Checking the Internet showed this was chronic problem for this make & model and that the problem was with the bulb socket contacts to the lamp housing. Several owners recommended using 'CRC 2-26' to treat the contacts. Many agreed that this solved the problem. It worked for me. But in researching 'CRC 2-26' on the Internet, I found several references in model railroad sites and forums. Several people had written, and some HB Division members have said, that cleaning the track with a "Bright-Boy" and then wiping the rails with alcohol on cloth cleaned the track but that it was then dry and subject to arcing which caused operational problems and pitting of track. Online writers state that anything abrasive will leave scratches in the rails that act as pockets for crud and the sharp edges of which act as electric field concentrators that then increase arcing. It is a momentary fix.

But many wrote in text dated from 2012 back to 1990 that 'conditioning' the rail head with an electrical contact cleaner & 'lubricant' solved the problem. Indeed one fellow stated that after treating his track he has run his trains for two years without any further work. Is this possible?

The June, 2011 issue of *Scale Rails* (the NMRA Magazine) had an article on the tests that one club had done to study the problem but they had not (apparently) researched anything on the internet or used anything to condition the rail – just clean it.

Below (reprinted from the referenced website) is the best article I have found to report the problem, search for solu-

tion, varied testing and report of success.

The author used a product named LPS-1 (made by LPS Laboratories) that is labeled a "greaseless lubricant" which provides a thin, non-oily lubricating film that penetrates and dries fast and will not attract dust or dirt." It is listed as safe on electronics, food machinery and most plastics. LPS-1 is available Amazon and many industrial supply businesses. CRC 2-26 (made by CRC Industries) is listed as a "plastic safe lubricant, penetrant and corrosion inhibitor that helps prevent electrical malfunctions caused by water penetration, humidity, condensation or corrosion. Restores resistance values and helps stop current leakage." It is stated that it can be applied directly to "connectors, relays, circuit breakers, transformers, switchgear, motors, generators, controls, etc." CRC 2-26 is available at Home Depot.

In checking the reviews for CRC 2-26 at the HD website, there is a review dated 03/29/2013 by 'David' that states: "Use of lubricants on Model Railroad track is controversial among modelers. It is a balancing act between better conductivity and reduced traction. I have a DCC system and consistent electrical contact is essential for smooth operations. A few drops of CRC 2-26 on the rails makes for a big improvement. It also helps with unreliable contact between delicate copper wipers and tiny wheels. Products are sold specifically for model railroad use, but in my experience 2-26 works better and is much less expensive."

Now, the posting to rec.model.railroad in June, 1990 that details testing and experience:

First, some background on my dirt problem. I used to clean the track with a Bright Boy before operating and things would work OK for about 1/2 hour, then engines would start acting up. I tried cleaning the engine wheels halfway through an operating session by placing a thin cloth on the rails, wetting it with denatured alcohol and holding the engine on the wet spot with the power on. This worked for about 10 more minutes. Another cleaning would reveal more crud. What I figured out was that after 10 years of use, my Order Number 294 7 FORM 19 car wheels had a lot of crud built up and were transferring the crud back to the track.

Before I heard about LPS-1, I decided to bite the bullet and clean ALL my car wheels (that's 1200 axles worth!). Since this was SOOO much fun, it took 9 months of tedious on and off work sessions with friends. Just before we finished,



Mark Paris of Tiny- Tronics told me about LPS-1, so I decided to try it.

I went through a few steps before using it, the first being to test it on a test loop before I screwed up 1000' feet of track on my layout. Also, I wanted to do an experiment to verify my hypothesis about wheels transferring dirt to the track.

I set up an oval with new Atlas FlexTrack to run a train on and cleaned the new track with alcohol (I didn't use a Bright Boy, because I now suspect that the binder used in them is what causes the wheel crud and because they cause scratches on the railhead that can collect dirt). I cleaned the wheels on my best running engine and ran it continuously for 1/2 hour with no problems.

After cleaning the track and engine wheels again, I got six cars with dirty wheels and pulled them around. Within ten minutes, the engine was stalling and bucking! Just to double check, I again cleaned the track and engine wheels (getting lots of black crud) and pulled some cars with clean wheels around for 1/2 hour with no problems.

Next I applied LPS-1 to the track. I used a 2" long piece of 1/2" square balsa wood to apply it to the track. I just sprayed a little on the wood (which soaked it up) and wiped it on the track. While the track was wet, I ran the engine over it to get some on the engine wheels, then took the engine off so the track and wheels could dry. After a half hour, I tried the test again with the dirty wheels. I pulled them around for an hour with no problems!

What surprised me was I could actually see black gunk on the track (I guess it was coming off the wheels somehow) and the engine still ran great! It seemed impervious to dirt! Convinced, I applied it to my layout. First I thoroughly cleaned the track with electrical contact cleaner, again spraying the cleaner on a piece of balsa and wiping the track with it. The balsa works great, since it absorbs the

cleaner and stays wet and it doesn't get caught on switch points and track joints like cloth does. I'm not sure if this cleaning step was necessary, but after spending so much time cleaning wheels, I didn't want to skimp. I used a track cleaning car (a piece of Masonite suspended below a box car) to clean tunnels and hard to reach areas by pushing it with an engine. Needless to say, I used a lot of pieces of wood (the track was filthy!). After cleaning it, I applied the LPS-1 using balsa and the track cleaning car. I also cleaned and coated all my engine wheels.

The next operating session (August, 1989) went beautifully. Every engine ran like clockwork. I have been operating twice a month since then and have reapplied LPS-1 once (for no special reason). Before a session I will push the track cleaning car over the layout to remove any dust that has settled. I use a clean piece of balsa to wipe dust off sidings (dust still settles on the track; LPS-1 doesn't *repel* dust). If I don't wipe the dust off, the engines will cough a little until the dust gets pushed out of the way.

LPS-1 Greaseless Lubricant is a product made by Holt Lloyd Corp. (Tucker, GA and Los Angeles, CA) and is designed for use on electrical contacts. They also make LPS-2 General Purpose Lubricant and LPS-3 Heavy Duty Rust Inhibitor, neither of which are suitable for our purposes.

LPS-1 has a bizarre characteristic: it is normally non-conductive but in the presence of an electric field or with metal to metal contact, it becomes highly conductive. Sounds sort of like what happens with locomotive wheels and the track, eh? It's been described as "a long polymer kind of thing" (don't ask me what that means, ask a chemist). It goes on wet and dries in about 30 minutes. It won't attract dust. It smells a lot like WD-40. It reduces traction a tad (I would guesstimate about 10%). A friend who does N-scale was having terrible contact problems after ballasting, tried LPS-1 and is now a true believer.