

# Lubrication Instruction Guide for Rail Infrastructure

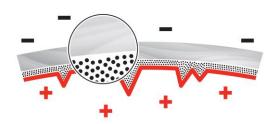


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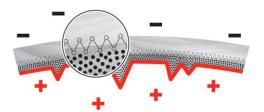


# Our unique MicPol® technology

The signature technology in Interflon lubricants for 40 years



- Developed in-house by our team of scientists
- Micronisation and Polarization of solid particles
- Our R&D recently found other, more sustainable solids



- O At the same time, they improved our MicPol® technology by polarizing some of the base oil
- Penetrating even deeper into the pores of the surface and forming a 'bonding bridge' between the solids and the rest of the lubricant

# Lubricating with MicPol® technology:

- Helps prevent metal-metal contact and stick-slip
- Repels water protecting against corrosion
- Reduces friction to a minimum



# **Interflon Lubrication Instructions for Track**

#### **T1** Slide Chair Lubrication

T2 Switch Tip 053

#### **T3** Clamp Lock Lubrication

T4 Auto-Lube Clamp Lock

T5 Supplementary Detectors

T6 HW Point Machine

T7 Point Machine Style 63

T8 Ground Frame Mechanical

T9 Facing Point locks

T10 Roller Rejuvenation

#### **T11** Grease Point Lubrication

#### **T12** Fish Plates Lubrication

#### T13 Breather, Scarf and Expansion Joints

T14 Bowmac

T15 Barriers

T16 Pandrol Clip Release

11/ Corrosion Protection

T18 Train Stops

T19 Semanhore Signals

T20 Interlocking Lever Frame Lubrication

#### **T21** Railhead Cleaner

T22 Fixings Thread Protection – Paste HT1200

T23 Cleaning Speed Boards

T24 Cleaning Stretcher Bars



# Slide Chair — Interflon Lubrication Instruction T1a



#### **Full Clean Conversion Process**

#### Day 1 (Conversion)

- 1. Remove the thick old grease/lube from the slide chair and all surrounding areas with metal scrapers.
- 2. Spray the slide chair and surrounding area with **EM30+** and agitate with a nylon brush to remove any residue grease.
- 3. Complete the cleaning preparation process by spraying the slide chair with **Metal Clean F** and wiping it with a clean cloth
- 4. Spray under the switch rail with **Lube TF**. Operate the switch several times to allow dirt to be removed from under the switch rail, then wipe the slide chairs with a cloth.
- 5. Apply 4ml of Lube EPR onto the slide chairs near the switch rail on the open side, then spread evenly over the slide chair using a long handle Brush.

(Repeat this application - steps 1-5 - in the reverse position)

#### Within 7 Days, apply a second coat.

(3 days if the switch operates more than 150/day)

- 1. Wipe slide chairs with a clean cloth.
- 2. Apply 4ml of **Lube EPR** onto the slide chairs near the switch rail on the open side, then spread evenly over the slide chair using a long handle brush.(Repeat this application in the reverse position)

#### **MAINTENANCE** (Every 2-8 weeks)\*

- 1. **Do not use Degreaser!** if cleaning is required, use **Lube EPR**, agitate with a nylon brush and wipe with a cloth.
- 2. Apply 4ml of Lube EPR onto the slide chairs at the foot of the switch Rail: this only needs to be done in the position the switch rail is found. On roller layouts, apply 2ml to both sides up to the stock rail and spread with a long-handled brush.

<sup>\*</sup> Please see Slide Chair lubrication notes.

# Slide Chair — Interflon Lubrication Instruction T1b



#### **Faster Conversion Process**

#### Day 1 (Conversion)

- 1. Remove the thick old grease with metal scrapers from the slide chair and surrounding areas
- 2. Spray under the switch rail with **Lube TF**, **especially** the last few Slide Chairs at the heel of the switch.
- 3. Apply Lube EPR (4-8ml) onto all Slide Chairs close to the switch rail foot in the fixed position.

#### Then once every week for the next 7 weeks.

- 1. Wipe slide chairs with a clean cloth to remove any dirt.
- 2. Apply Lube EPR (4-8ml) onto all Slide Chairs close to the switch rail foot in the fixed position.

This will gradually remove the old lubricant and coat all surfaces with Lube EPR.

#### MAINTENANCE (Every 4-8 weeks)\*

<u>Do not use Degreaser!</u> - if cleaning is required, use <u>Lube EPR</u>, agitate with a nylon brush and wipe with a cloth.

Apply 4ml of Lube EPR onto the slide chairs close to the switch rail; this only needs to be done in the position the switch rail is found.

On roller layouts, every **13 weeks**, apply 2ml to both sides up to the stock rail and spread with a long-handled brush.

\* Please see slide chair lubrication notes.

# Slide Chair - Interflon Lubrication Notes

#### **Slide Chair Lubrication Notes:**

- 1. Once the above Instruction has been completed (T1a/b), only use Interflon Lube EPR to clean and lubricate Slide Chairs.
- 2. Remove contamination when seen with a clean cloth.
- 3. Apply only 2ml of Interflon Lube EPR in areas of high contamination and brush in to decrease dry time.
- 4. The **frequency** of **4 weeks** is only a guide; however, for points that are trouble-free, a frequency of **8 weeks** can be achieved. Points at busy junctions (Switches with more than 150 movements per day) may need to be decreased to every **2 weeks**.
- 5. Suitable for **all types** of Slide Chair, including plastic and graphite round inserts.
- 6. Hy-Drive switches length G&H must only be lubricated with Lube EPR after the last SO unit.
- 7. When Slide Chairs are heavily contaminated or sticky, spray with Interflon Lube EPR and agitate with a nylon brush, then remove contamination with a clean cloth; this rejuvenates the Slide Chair and improves coating performance.

This is how a Slide Chair should look after treatment with Lube EPR



# **Switch Tip** — Interflon Lubrication Instruction **T2**

# **Switch Tip Lubrication**

The traditional three dabs of grease used have been found to be very hit-andmiss and can lead to grease being ineffective due to drop and lack of full coverage along the planned contact surface. It also prevents the rail from being inspected for damage.

- 1. Remove the thick existing layer of grease with a metal scraper, then spray the area with **Metal Clean F** and wipe clean with a cloth. Power Wipes can also be used for quick cleaning.
- 2. Spray **Grease OG** from the switch toe all the way along the Planned contact face towards the heel, holding the straw 6" from the surface, applying an even coat.
- 3. Ensure that no overspray coats the top of the rail by shielding it. If This does happen; please spray some **Metal Clean F** on a cloth wipe And clean the top of the rail.
- 4. Remove all wipes and residue correctly.
- 5. Network Rail Recoat switch tip with **Grease OG**, frequency as per the 053-inspection standard.

London Underground re-application as per instruction PM4 or S117 inspection process and work instructions for switch repair grind.

**Grease OG** leaves a clear, rustinhibiting and wear-reducing coating, which is also proven to extend the life of the switches.



# Clamp Lock — Interflon Lubrication Instruction T3

# **Clamp Lock Lubrication**

- 1. Remove old grease with metal scrapers from the body, slides, and surrounding areas.
- 2. Spray the pin, lock arm and slides with Metal Clean F / EM30+ and agitate with a nylon brush in both open and closed positions.
- 3. Spray Lube TF into the lock arm, body, slides and pin. Operate the Switch and rotate the pin to draw out contamination, then use a cloth to clean all surfaces.
- 4. Lightly spray Lube EPR into cams, slides, body, lock arm and contact surfaces, then brush all surfaces using a long handle brush, not forgetting the underside of slides. Wipe the lock arm with a cloth to prevent contamination.

#### **MAINTENANCE**

- 1. **Do not use Degreaser!** if cleaning is required, use **Lube EPR**, agitate with a nylon brush and wipe with a cloth.
- 2. Spray Lube TF into the bush and pin; rotate the pin to draw out contamination, then use a cloth to clean all surfaces.
- 3. Lightly spray Lube EPR into cams, slides, body, lock arm and contact surfaces, then brush all surfaces using a long handle brush, not forgetting the underside of slides. Wipe the lock arm with a cloth to prevent contamination.





# **Grease Points** — Lubrication Instruction **T11**



# **Grease Applications**

Interflon **Grease MP1** is a unique lithium complex grease with MicPol® technology; this coates surfaces to provide a low friction coating, which withstands shock loads and resists water washout. Interflon **Grease MP1** has a temperature range of - 30°C to 145°C, making it suitable for all seasons.

- 1. Wipe the grease nipple and the surrounding area with Interflon Power Wipe or a clean cloth, do not use a cleaner/degreaser as this will remove the grease from the fittings.
- 2. Fit the shuttle grease gun and slowly apply Grease MP1 into the nipple and pins, allow old grease to be purged, stop applying grease when you can see fresh grease being expelled or feel back pressure.
- 3. If the grease point will not accept grease, remove the grease nipple and spray into the hole with **Lube TF** and replace the grease nipple.
- 4. Wipe all excess grease away with a clean cloth and finally smear a small amount of grease over the grease nipple to protect it.



# Fishplate — Interflon Lubrication Instruction T12



# **Fishplate Lubrication**

- Slacken off fishplates and thoroughly clean fishing surfaces with scrapers, then use Degreaser EM30+ or Metal Clean F with a nylon brush. This process can be completed over a 4-year period: every 4<sup>th</sup> plate is cleaned and the other three lubricated without slackening the bolts.
- 2. Apply Lube EPR onto all Fishplate surfaces and spread evenly using a paintbrush.
- 3. Re-tighten bolts/fishplates to correct torque setting using an approved method.
- 4. Apply a maximum of 40ml of Interflon Lube EPR to each fish plate using the dosing applicator system (max. 80ml in total per joint). With the dose system set on 10ml, apply one dose alone on the top of the plate, then 10ml down each side and 10ml along the bottom of the plate.

#### **MAINTENANCE**

- 1. Re-apply Interflon Lube EPR every 12 months There is no requirement to slacken off fishplates from the second application of lubricant onwards.
- 2. Check nut/bolt torque every two years using an approved method to loosen nuts and re-tighten them.





# **Breathers** — Interflon Lubrication Instruction **T13**



# **Breather & Expansion Lubrication**

- 1. Slacken off the joint bolts.
- 2. Jack up the rail using a rail jack following your company procedures.
- 3. Thoroughly clean out the grease from the plate and joint using a scraper, Degreaser EM30+/ Metal Clean F, and a stiff nylon brush. Allow 5 minutes for the evaporation of Metal Clean F.
- 4. Spray Lube EPR onto the plate and all moving surfaces.
- 5. Re-assemble the joint and torque the bolts to the required setting.

#### **MAINTENANCE**

1. Re-apply Interflon **Lube EPR** every 12 months down the joint and allow it to penetrate in and under the rail.





# Rail Head Cleaner — Interflon Instruction T21



# Rail Head Cleaner (to remove leaves and rust)

- 1. Wearing gloves and glasses, carefully decant the Interflon Clean OTR from the 10-litre tub into a suitable spray bottle like a garden sprayer, preferably with a long lance.
- 2. Turning the spray nozzle on the lance tip to a jet, run a bead of Clean OTR up the middle of the head of the rail (not over-applying) and allow it to spread.
- 3. Give the product 10 minutes to react with the organic leaf matter; this will turn the leaves into a pulp, which can be removed by using water or allowing the jetting train or the wheel sets of a passing train to disperse the dissolved leaves and fluid.

#### **Dilution rate**

**Very heavy** leaf contamination; use neat **Light** contamination: dilute 1.1 with water

#### **Notes**

Testing has proven that you only need a small amount of product to dissolve the leaf matter on the rail head. Applying too much product could lead to initial wheel adhesion slippage.

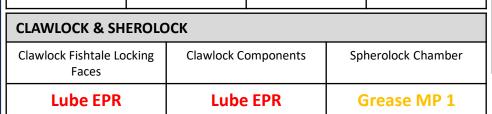




# **Points Machines** — Interflon Lubrication Recommendations

Work Instructions 8100-600-087 – SCHEDULES OF MAINTENANCE TASKS FOR POINT MACHINES

SWITCH CIRCUIT CONTROLLERS / ELP 3319 EXTERNAL DETECTORS					
Pins	Bushes	Shafts	Cover Locks		
Lube EPR	Lube EPR	Lube EPR	Lube TF		





WESTINGHOUSE – M3A						
Lock Bar Detection Bar Drive Bar	Gears	Oil Cups & Holes Bronze Bushes Pivot Pins	Open Bearings Grease Nipples	Wear Plate Pads	Cover Lock	Clutch Plates
Lube EPR	Grease OG	Lube EPR	Grease MP 1	Lube EPR	Lube TF	Dry & Clean

WESTINGHOUSE – 84A						
Lock Bar Detection Bar Drive Bar	Spur Gears Worm Wheel Worm Rack Pinion Sleeve Ass	Contact Bearings Gearbox Motor Switch Toggle Main Gear box shaft	Operating Bar Bearings side case Detection Bars Pivot & roller Pins Clawlock	Cover Lock	Point Machine Chamber	Clutch Plates
Lube EPR	Grease OG	Grease OG	Lube EPR	Lube TF	Loctite No.3 Aviation Gasket Cement	Dry & Clean

SIEMENS – S 700 K					
Lock Bar Detection Bar Drive Bar	Point Machine Components	Gear Wheels	Cover Lock	Point Machine Chamber	Clutch Plates
Lube EPR	Lube EPR	Grease OG	Lube TF	Loctite No.3 Aviation Gasket Cement	Dry & Clean



**Case Studies** 



### 7.0 Findings and Conclusions

During the trial of the Lube EP lubricant, the following are the findings;

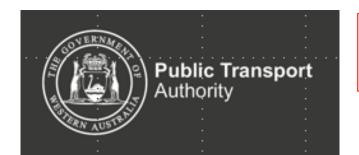
- 1. Lubricant forms a dry film as per the manufacturer's claim on the chair plate.
- Being dry lubricant does not attract dust, dirt and/or coal particles on the chair plate
- There were no signalling or track failures on the trial site during the entire trial period.
- The TFP switch operatorial time is within the allowable time limits.
- There were no reports of a sticky switch.
- 2. Lubricant dry film remains effective once dry and withstands heavy rain. The rain didn't wash away the lubricant film.
- 3. Easy to reapply on the existing film, and no cleaning is required. Maintenance applications are much quicker compared to current practices and lubricants.
- 4. A much smaller quantity of Lube EP lubricant is consumed compared to other lubricants

#### During the trial of the Lube EP lubricant, it is concluded that;

- 1. The dry lubricant film is effective chair plate lubrication.
- 2. Remains effective once dry in adverse weather conditions
- 3. Time and effort will be saved on the reapplication during maintenance cycles.
- 4. Sustainable and relatively environmentally friendly

### 8.0 Recommendations

It is recommended to the asset managers to consider the use of Lube EP as a preferred chair plate lubricant. This lubricant outperforms other lubricants on performance once applied correctly. Also, the comparatively less hazardous nature of this lubricant should make it the lubricant of the choice from WH&S's point of view. The much smaller quantity required 8ml per chair plate makes it an effective choice from an economic and environmental point of view as well.



Testing and improvements made at PTA with Network Rail Consulting and Interflon on Slide Chairs.







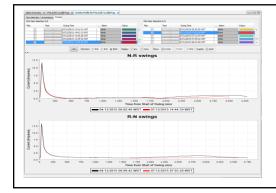
Removal of old Rocol lubricant from Slide Chairs, to prepare for application of Interflon coating



Application of Interflon Lube EPR







Results from converting to Interflon Lube PR

- Mandurah current and time savings with a cleaner environment.
- 50% current savings at Butler

# Norwich - Anglian Route Steven Kaye - ASTME



#### Cromer 123 & 124 Points

Every year we experience points failures with leaves sticking to the slides. Since changing to Interflon no reported failures, patrol men report leaves are no longer sticking to slides and we have had no failures.





# Sandwell & Dudley - LNWS Route



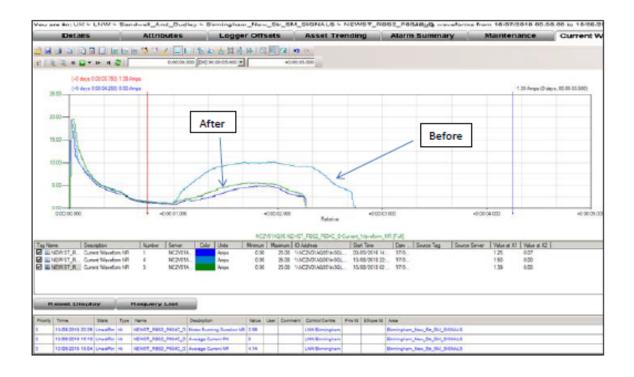
#### Bossie Ackerman - IME

Working with Interflon since 2015, since converting points to Interflon lubrication we have seen a 70% reduction in points failures in the area. Training was undertaken with all S&T and P-Way depo's to ensure correct application was carried out on track.

"We had a period of 60 days with no switch failures, this is unheard of "

# Adam Round - Birmingham New Street

NS604 points are some of the worst we have due to water ingress and have had an RCM alarm on them for a while now. Last night the guys completed a full Interflon treatment as well as 13 week maintenance. There's still much work to be done on these (P-way issues, iron work replacement) but as you can see from the RCM traces and photo's they are vastly improved.



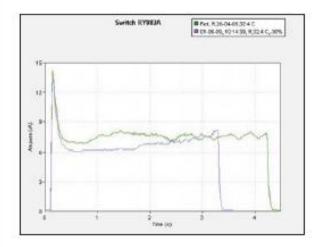
# Rugby - LNWS Route





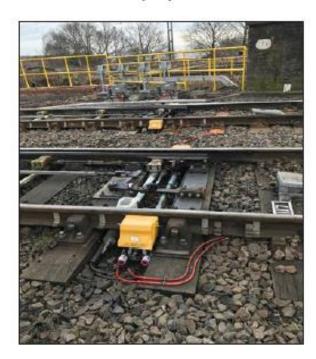
Working with Interflon since 2008, we introduced Interflon to a Hy Drive set of points at Rugby which had been a major problem for many months.

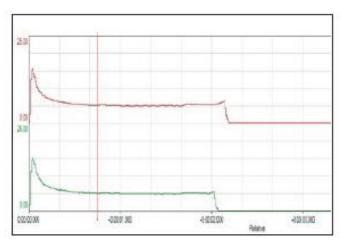
After an hour of cleaning and lubrication with Interflon the Hy Drive points operated smoothly and carried on performing well ever since.





Clamp Locks identified as biggest failing asset, Interflon and simalube process introduced in 2015 as a masterclass, result as a DU went from 28th Nationally up to now 7th best (SAF).



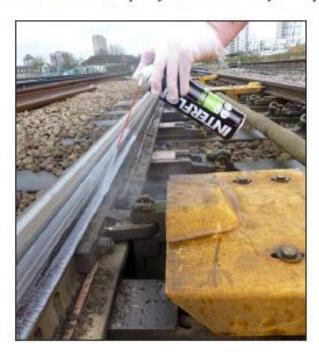


# Derby - East Midlands Route Phil Crowther - Track Section Manager



777pts and 778a pts at Sandiacre – TCC was a constant P8 failure site partly caused by the Sharpe radius and because of the shunting back and forth over these two sets of switches, this resulted in us having to plan the defect to be repaired every 2 to 3 months, however since we have been using the **OG Grease**, the failures have decreased to practically zero which is fantastic news.

Overall, on all of our 98 set of switches it seems we have had a significant reduction in P8 failures, which in my mind is because of us using the **Grease OG** spray on a weekly frequency.





# Jason Wardell - IME Derby

Since the introduction of Interflon and proper application, points failures have reduced by 80%, at quarry sites, reduction from 1 failure per week to now no failures after 8 months.

### Our International Clients



- Improving reliability of AD600 breathers
- Improving lubrication practises of switches for TGV
- Improving environment for better visual switch inspection
- Reduce failure due to contamination of slide chairs
- Improve weather resistance in wet and cold weather conditions



- Improving reliability in freezing weather extremes
- Eliminating rail pad delamination and effecting toe load of the clip
- Extending lubrication intervals reducing maintenance re visits
- Reduce failure due to contamination of slide chairs
- Improving reliability of switch machines and locking devices



- Improving flexture at the heel of the swingnose
- Improving weather resilience after heavy rain fall and flooding
- Extending lubrication intervals and the ability to apply in the wet
- · Improving issues around throw times and motor time out
- Improving reliability of switch machines and locking devices



- Improving switch performance and maintenance frequency
- Improving weather resilience after heavy rain fall
- Improving environment for better visual switch inspection
- · Allows for inspection of switch rectification work needed



- Improving environment for better visual switch inspection
- Reduce failure due to contamination of slide chairs
- Improve weather resistance in wet and cold weather conditions
- Improving speed of lubrication application around switches
- Extending lubrication frequency from weekly to monthly



- Improving reliability of signalling equipment
- Extending lubrication intervals reducing maintenance revisits
- Using Interflon grease MP1 to prevent plugging of grease nipples
- Better lubricant weather resistance properties since using Interflon



- Improving reliability around switches and detection
- Developing automatic lubrication systems to signalling equipment
- Working on the wheel flange lubrication fitted to trains
- Improving environmental cleaning products for equipment







INFR/ABEL

DB

SBB CFF FFS

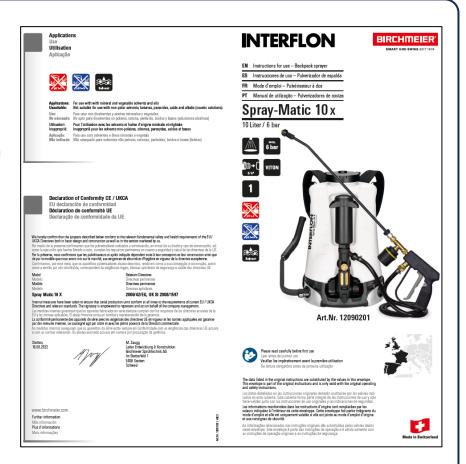
# **INTERFLON 10X** - Backpack

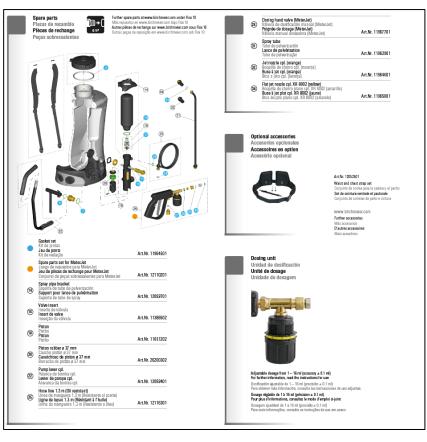
The Interflon 10X backpack allows Lube EPR to be applied onto Slide Chairs and into Fish Plate joints, in exactly the correct quantity.

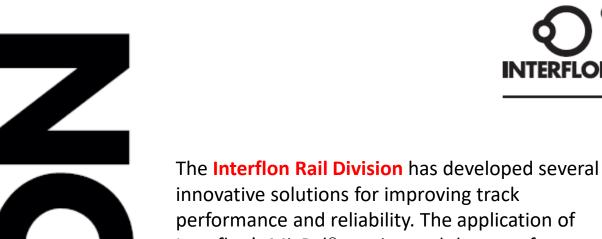
The backpack also enables the lubricator to be in a safer upright position.

#### Dose unit settings:

Slide Chair: 4ml Fish Plate: 10ml x 4









performance and reliability. The application of Interflon's MicPol® coating and the use of a core range of products enables track equipment to be lubricated cleanly, with much less quantities and with longer intervals between relubrication. This not only provides a cleaner environment, but it also importantly allows equipment on track to be inspected for faults.

# **INTERFLON (UK) Limited**

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## Interflon Rail Products

# **Interflon PPE Icons Explained**



GLOVES REQUIRED

Check SDS for suitable material



TIGHTLY SEALED GOGGLES (EN 166)



RESPIRATOR REQUIRED\*

# **Interflon Packaging Icons Explained**



**MULTI-PURPOSE** 



**HEAVY LOAD** 



CORROSION PROTECTOR



**OPEN GEARS** 



**BEARINGS** 



WATER RESISTANT



**MODERATE LOADS** 

<sup>\*</sup> Please note respiratory equipment is required when using any aerosol product in poorly ventilated areas





# **Product Guide for Australia Rail**

Product	Packaging	Code	Description	Applications	
Metal Clean F	12 x 500 ml \$36.50/ea	9797	Powerful, readily biodegradable food grade (NSF-H1) cleaning and degreasing agent. Incorporating a powerful spray jet means dirt and grease in hard-to-reach places is easily removed	Final Clean to prepare surfaces for Interflon MicPol® coating	
Degreaser EM 30+	10 ltr \$395.00/ea	8489	Very powerful, fast-acting cold degreaser with a mild natural odour that is ideal for use on the railways.  Evaporates slowly so that even persistent dirt is removed and leaves behind no residue	For deep clean of all heavily contaminated equipment, to remove old lubricant and dirt.	
Lube TF	12 x 500 ml \$47.50/ea	9668	Highly versatile, industrial-quality dry- film lubricant fortified with MicPol®. Designed for a multitude of general machine and maintenance applications over a wide range of environmental conditions	Fast penetrating spray to break down rust and contamination in equipment.  The first treatment of Slide Chairs and Equipment	
Lube EPR  Backpack 10X	6 x 1 ltr \$105.00/ea 10 ltr \$975.00/ea	9690	Extreme performance rail switch point lubricant, fortified with MicPol®. With exceptional resistance to the weather and contamination conditions typical for rail point applications. Designed with a view to operating a much safer and cleaner, more reliable and cost-effective rail network.	Extreme Pressure MicPol® Iubricant used to Iubricate and clean Slide Chairs Fish Plates Points Machines	
Grease OG	12 x 500 ml \$58.00/ea	9722	Exceptionally long lasting, transparent lithium-calcium-complex grease for open gears delivering the advantages of Interflon's unconventional Lubrication Technology. Engineered for the problem-free lubrication of a wide range of requirements and environmental conditions	High load spray transparent grease to protect Switch Tip Stop Corrosion Open Gears	
Grease MP 1  Grease Gun	12 x 400 ml Shuttle \$67.50/ea \$95.00/ea	9149 7281	Reduces vibrations and wear of heavily loaded machine parts through MicPol® Technology. Highly water resistant, protects against corrosion and the penetration of water and dirt  Multi-purpose MicPol® for all greased applicat the railways		
LeafGuard	10 ltr \$995.00/ea	6737	Interflon LeafGuard® has a quick activation time (1-2 minutes). No need to rinse with water or wipe as the product self-cleans and leaves a micro layer which re-activates with rainwater and moisture. Result: the surface stays cleaner for longer.	Removal of leaf and rust contamination on top of the rail	

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