



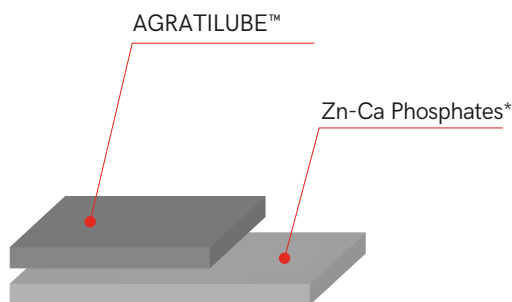
AGRATILUBE™

The new developed topcoat for dry to touch phosphated parts

AGRATILUBE™ is a water based topcoat with dry to touch finish, acts as a corrosion prevention layer and as a lubricant. Hazy, matte finish that doesn't alter the appearance of phosphated parts.

Phosphate Base Layer

AGRATILUBE™ can be applied on the most common phosphate conversion layers used for screws.



*Mn Phosphates, Zn-Fe Phosphates, Zn Phosphates /Zn μ -Phosphates

Appearance

- Hazy, matte finish
- No alteration of phosphated parts appearance
- Dry to touch

Corrosion and chemical resistance

- Increased humidostatic chamber red rust resistance, compared to standard phosphated and oiled coatings:
 - 8 hours of DIN EN ISO 6270-2 CH corrosion test (100% Humidity, 40°C) for a ZnCa μ -phosp. layer
- Suitable for a dip-spin or rack application

Coefficient of friction

- μ_{tot} =0.08 - 0.14 according to ISO 16047
- Extremely stable performance:
 - tightening on steel
 - tightening on KTL
 - tightening on aluminium
- Multi-tightening friction coefficient stability, at least 5 times; prevents stick-slip phenomenon

5 tightenings according to ISO 16047

ID	μ_{tot_1}	μ_{tot_2}	μ_{tot_3}	μ_{tot_4}	μ_{tot_5}	μ_{b_1}	μ_{b_2}	μ_{b_3}	μ_{b_4}	μ_{b_5}	μ_{th_1}	μ_{th_2}	μ_{th_3}	μ_{th_4}	μ_{th_5}
Test 1	0.117	0.121	0.119	0.120	0.121	0.111	0.120	0.120	0.122	0.122	0.126	0.122	0.119	0.118	0.118
Test 2	0.118	0.119	0.118	0.118	0.119	0.118	0.119	0.118	0.120	0.120	0.121	0.118	0.118	0.116	0.118
Test 3	0.120	0.118	0.118	0.118	0.120	0.118	0.119	0.119	0.121	0.123	0.123	0.117	0.115	0.115	0.114
Test 4	0.118	0.122	0.122	0.122	0.122	0.120	0.125	0.126	0.127	0.126	0.116	0.116	0.116	0.115	0.115
Test 5	0.118	0.123	0.125	0.123	0.125	0.118	0.122	0.125	0.124	0.126	0.118	0.125	0.125	0.122	0.122
Max	0.120	0.123	0.125	0.123	0.125	0.120	0.125	0.126	0.127	0.126	0.126	0.125	0.125	0.122	0.122
Min	0.117	0.118	0.118	0.118	0.119	0.111	0.119	0.118	0.120	0.120	0.116	0.116	0.115	0.115	0.114
Mean	0.118	0.121	0.120	0.120	0.121	0.117	0.121	0.122	0.123	0.124	0.121	0.120	0.119	0.117	0.118
σ	0.001	0.002	0.003	0.002	0.002	0.003	0.002	0.004	0.003	0.003	0.004	0.004	0.004	0.003	0.003
3 σ	0.004	0.006	0.009	0.007	0.006	0.010	0.007	0.011	0.009	0.008	0.012	0.011	0.011	0.009	0.009



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Technical details

- Water based topcoat
- Needs high temperature curing (°C 100) for a correct application
- Does not contain CrVI or REACH restricted chemicals
- Ready to use, does not need any dilution
- Shelf life of finished product is higher than oiled parts
- Doesn't affect the H-embrittlement phenomena
- Very good adhesion

Cleanliness performance

Due to the dry to touch nature of the coating, the cleanliness level tested according to VDA 19 is better compared to screws coated with μ -phosph. + oil.