

Protective Process & Lubrication catalogue

Version 9

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ZINC & ZINC ALLOY

System Type	Process Name	Description /Key Features	Components	Ecology
Acid Zinc	ZETAPLUS 450 EU AS	Very ductile deposit, wide temperature range: 20 - 55°C	Base Brightener	No AOX, no OCB, low COD
	ZETAPLUS Merit AS AM	Bright, ductile, economical Ammonium or mixed electrolyte. Approvals: GMM	Make Up Maintenance	
	ZETANIUM 250 EU AS	Bright, ductile, economical electrolyte for rack	Base Brightener Replenisher	
	ZETAPLUS Insignia "E" AS AM	Bright, ductile, economical Potassium, Ammonium or mixed electrolyte	Make Up Maintenance	
	ZETAPLUS 600 EU AS	For steel castings. Wide temp. range: 20-45°C. Ductile. Approvals: Continental Teves	Base Brightener	No AOX
	ZETAPLUS 455 EU	Very ductile deposit, wide temperature range: 20 - 55°C	Base Brightener Replenisher Rack Replenisher Barrel	
	ZETANIUM 220 EU AS	Bright, ductile, economical electrolyte	Brightener Replenisher	
	ZETAPLUS 460 BF EU AS	Bright, ductile, potassium electrolyte	Base Brightener 460 Additive	No AOX, no boric acid

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	ZETAPLUS 875	Reel-to-Reel	Base Brightener	Thiourea-free
	ZETAPLUS 869 EU	High speed, continuous Zn plating system for tubes, wire and steel strip (based on sulfates)	Base Brightener Replenisher	
	ZETAPLUS 465 BF EU	Bright, ductile, Potassium electrolyte, contains OCB	Base Brightener 465 Additive	No boric acid
Alkaline Zinc	PRIMION 240 EU AS AM	Uniformity of thickness, outstanding bright throwing power in LCD, can be used in a wide range of Zn (7-14 g/l). Approvals: Massey Ferguson, FAW, PSA, Renault, Valeo, Audi, TRW, Bajaj Auto, Royal Enfield, Suzuki, Tata, Volvo Group	Base Brightener Purifier1+Purifier2 or Replenisher + Purifier 2	EDTA free
	PRIMION 250 EU AS AM	Higher brightness than PRIMION 240. Approvals: Volvo Group	Base Brightener Purifier 2 Purifier 3	EDTA free
	PRIMION Contour Plus AM	Single component system, offers high efficiency and exceptional high/low thickness distribution	Additive	EDTA free

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Tin Zinc	PERFORMA 530 EU AS AM	Neutral process for deposition of SnZn alloy 75/25	Base Brightener Stabilizer	
Zinc Cobalt	XENITH Pinnacle AM	Acid ZnCo. Versatile process for rack or barrel installations.	Make-up Maintenance Co-Replenisher	
	XENITH Paragon	Alkaline ZnCo. Versatile process for rack or barrel installations	Additive Stabilizer Replenisher	
Zinc Iron	PERFORMA 260 EU AS AM	Very good efficiency, metal distribution and brightness, easy waste treatment. Approvals: Renault, PSA, INA Schäßler, Royal Enfield, Tata, Volvo Cars, Delphi, Ford, GM	Base Brightener Stabilizer Additive	Low organic content, amine free
	PERFORMA 261 EU	Very good cathode efficiency for barrel applications, wide range for Fe. Approvals: Renault, PSA, Volvo Cars	Stabilizer Base FE Additive RP	Low organic content, amine free
	PERFORMA 269 EU AM	Very stable process. Approvals: Renault, PSA, INA Schäßler, Volvo Cars	Base Additive Brightener	

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	PERFORMA 226	Zinc-Iron Proces with 7-10% Fe	Additive Fe Base CPLX	Ni-free high performance coating
Zinc Nickel	PERFORMA 280.5 / 285 EU AS AM	State of the art alkaline ZnNi process. Cathode efficiency: 50 - 60%, with PMS/3S membrane 60 - 80%, best in barrel. Approvals: Böllhoff, CF Gomma, Garrett Honeywell, PSA, Renault, Renault Trucks, Audi, VW, Volvo Cars, Volvo Group, Massey Ferguson, FAW, Ford, Chrysler, GM	Base Ni-CPL Brightener Universal Additive LCD	Low amine content, with membrane: no CN or breakdown products
	PERFORMA 286 EU AS AM	Versatile bright rack/ barrel process	Base Starter NiCPL Additive HCD Additive LCD Brightener Brightener H Booster	With membrane: no CN or breakdown products
	PERFORMA 288 EU AS	Best in class, bendable alk. ZnNi process, good efficiency and thickness distribution. No burning. Uniform satin aspect and uniform alloy. Best in rack. Approvals: VW, Volvo	Base Ni-CPL Brightener MU Brightener R Purifier	With membrane: no CN or breakdown products

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	PERFORMA 560 BF EU	Acid ZnNi process with superior LCD performance	Base Additive H Brightener	No boric acid
* AOX: absorbable organic halogen. OCB: ortho-chloro-benzaldehyde. COD: chemical oxygen demand				

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TRIVALENT CHROME PASSIVATES

System Type	Process Name	Description / Key Features	Operation parameters	Ecology
ZnNi Transparent/ Blue Passivates	FINIDIP 128 EU AS AM	Blue-violet aspect, Co containing. Approvals: VW, Ford, PSA, Renault, Böllhoff, CF Gomma, Federal Mogul, FAW, Massey Ferguson, Renault Trucks, Audi, Toyota, Volvo Cars, GM	150 ml/l	
	FINIDIP SILVER Zn-Ni EU AS AM	Silver aspect	125 ml/l	
	FINIDIP 128.6 EU AS AM	Silver aspect	60 ml/l	Co free
	FINIDIP 128 CF EU AS AM	Blue aspect with excellent corrosion resistance. Approvals: Volvo Group	160 ml/l	Co free
	FINIDIP 129 EU AS AM	Blue aspect with long life and excellent corrosion resistance. Can be applied on Zn deposits as well. Approvals: Audi, Akebono, GM	Barrel: 25 ml/l part A, 75 ml/l part B; Rack: 60ml/l part A, 70ml/l part B	
ZnNi Black Passivates	FINIDIP 728.2 EU AS AM	Single component	80 – 100 ml/l	
	FINIDIP 728.3 EU AS AM	Approvals: Ford, Volvo Group, Chrysler, GM	80 ml/l part A, 70 ml/l part B	Co free

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System Type	Process Name	Description / Key Features	Operation parameters	Ecology
	FINIDIP 728.5 EU AS	Deep black, even with low Ni, less white haze	80 ml/l part A, 40 ml/l part B	
	FINIDIP 728.5 CF	Deep black, even with low Ni, less white haze	130 ml/l part A, 60 ml/l part B	Co free
ZnFe Black Passivates	LANTHANE BLACK 727 EU AS AM	For barrel. Exceptional appearance and black performance in only one product. Approvals: Volvo cars, Royal Enfield	250 ml/l	
	FINIDIP 726 EU AS AM	Exceptional appearance and performance. Approvals: PSA, Renault, INA Scheffler, VW, Volvo Cars, Delphi, Ford, GM	40 ml/l part A, 250 ml/l part B	
	FINIDIP 726.2 EU AS AM	Economic process with good appearance and performance. Approvals: Chrysler, GM	10 ml/l part A, 30 ml/l part B	
Zn Trivalent Yellow Passivates	LANTHANE YELLOW 334 EU AS AM	Green-yellow aspect, contains Se	140ml/l 334 part A, 12 ml/l 334 part B;	
	LANTHANE YELLOW 335 EU AM	Red-yellow aspect, F and Se containing	100 ml/l 335 part A, 10 ml/l 334 part B	
	LANTHANE YELLOW 333 AM	Dye based yellow	100 ml/l part A, 1-2 ml/l part B (dye)	Se free

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Zn Silica Passivates	LANTHANE TR-175 EU AS AM	Excellent corrosion resistance. Approvals: Massey Ferguson, VW, Garrett Honeywell, PSA, Renault, Audi, Autoliv, Toyota, VW, Bajaja, Royal Enfield, Denso, Honda, Isuzu, Mazda, Nissan, Volvo Group, Delphi, GM	100 – 150 ml/l part A, 80 – 100 ml/l part B	Low Co
	LANTHANE SI 360 CF EU	Excellent corrosion resistance, high tolerance to impurities	100 – 120 ml/l part A, 80 – 100 ml/l part B	Co free
Zn Iridescent Passivates	FINIDIP 128 CF EU AS AM	Yellowish aspect with good corrosion resistance even with higher Fe levels	160 ml/l	Co free
	LANTHANE 315 EU AS AM	Excellent corrosion resistance, high Co and Cr concentration. Approvals: PSA, Renault, TRW Lucas, Valeo, Autoliv, Continental Teves, INA Scheffler, Toyota, VW, Royal Enfield, Suzuki	150 – 180 ml/l	Low Co
	LANTHANE 316 EU AS AM	Excellent corrosion resistance, low temp. Approvals: Massey Ferguson, PSA, Renault, Audi, TRW, GM	100 – 200 ml/l	Low Co and Cr
	LANTHANE 317 EU AS AM	Excellent corrosion resistance, low temp., low make up, can be applied as blue or thick film, one product	30 – 50 ml/l blue, 80 – 120 ml/l iridescent	

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	LANTHANE 318	Excellent corrosion resistance, low temp., low make up, greenish appearance	60 – 100 ml/l	
Zn Blue Passivates	FINIDIP 124 EU AS AM	Deep blue aspect, 40-72 h. Approvals: VW, Royal Enfield	30 – 40 ml/l	
	LANTHANE BLUE 126 EU AS AM	Good corrosion resistance, 120 h barrel/144 h rack	60 – 100 ml/l	
	FINIDIP 145 EU AS AM	Long bath life, can be run as iridescent	20 – 50 ml/l blue, 100 - 200 ml/l iridescent	
	FINIDIP 140 EU	Deep blue aspect. Approvals: VW, Tata	50 – 80 ml/l	
	FINIDIP 145 CF EU	Deep blue and uniform aspect	30 - 70 ml/l	CMR-free
	LANTHANE Stellar AM	Pronounced Blue 24-48 h	20 – 40 ml/l	
Zn Black Passivates	LANTHANE BLACK 707 EU AS AM	Alkaline Zinc Rack only Approvals: Toyota, Royal Enfield, Volvo Group	120 ml/l part A, 150 ml/l part B, 5 ml/l part C	
	LANTHANE BLACK 706	Alkaline Zinc Rack only, low make up, deep black color	80 ml/l part A, 50 ml/l part B	

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	LANTHANE TR 185 JK AM	Uniform, stable, high performance black for barrel alkaline Zn. Approvals: Denso, Nissan, Toyota, Hyundai	100 ml/l part J, 80 ml/l part K	
	LANTHANE TR 184 JK AM	Uniform, stable, high performance black for rack alkaline Zn. Approvals: Volvo Group	50 ml/l part J, 30 ml/l part K	
	LANTHANE BLACK 710 EU AS AM	Black aspect for all types of Zn. Corrosion resistance (48/72h). Approvals: VW, Nissan	100 - 200 ml/l part A, 15 - 30 ml/l part B, 3 - 6 ml/l part C	
	LANTHANE BLACK 735	Alkaline zinc barrel, deep black appearance	90 ml/l A, 100 ml/l B	
	LANTHANE BLACK 745	Acid zinc rack and barrel, deep black appearance	40 ml/l A, 80 ml/l B	
	LANTHANE BLACK 760 CF EU	Co-free black passivate. Best with Post Dip 200	100 ml/l A, 70 ml/l B	Co free
Post Dips	POST DIP FT 190 EU AS AM	Post treatment to increase black aspect & corrosion resistance, best in barrel application. Approvals: VW, Denso, Nissan, Toyota	50 – 250 ml/l	

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System Type	Process Name	Description / Key Features	Operation parameters	Ecology
	POST DIP FT 195 EU AS	Post treatment to increase black aspect & corrosion resistance, best in barrel application, better last drop than PD190	130 – 220 ml/l	
	POST-DIP 200 EU	Drop-free post dip particularly suited for black passivates	100-150 ml/l Post Dip 200, 20 ml/l Part A, 5 ml/l Part B rack only	CMR-free

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— DRY FILM, TOP COATS & SEALERS

System Type	Process Name	Description / Key Features	Operation parameters	Ecology
Fastener Top Coats friction modified	FINIGARD 105 EU AS AM	$\mu = 0.12 - 0.18$. Approvals: Ford, Böllhof, Renault, Renault Trucks, PSA, Valeo, Brose, VW, Opel, Nissan, Volvo Cars, Volvo Group, Delphi, GM	85 -100 %	
	FINIGARD 150 EU AS AM	$\mu = 0.12 - 0.18$ on steel and Aluminum. Approvals: Renault, Renault Trucks, PSA	80 -100 %	
	FINIGARD 111 EU AS AM	$\mu = 0.08 - 0.13$ Approvals: Ford, Brose, TRW, Audi, Volvo Cars, GM	90 -100 %	
	FINIGARD 112 EU AS AM	$\mu = 0.09 - 0.14$ Steady $\mu =$ steel, Al, PCS, e-coat, even with multiple tightening, according to ISO16047, STD4419, MBN10544, VW01331	85 -100 %	
	FINIGARD 113 EU AS AM	$\mu = 0.10 - 0.16$ on ZnNi for GM. Approvals: Chrysler, GM	85 -100 %	
	FINIGARD 109 EU AM	Made for thread forming screws. Approvals: Volvo Cars	90 – 100%	
	FINIGARD 107 EU AS	For self-tapping screws	100%	

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System Type	Process Name	Description / Key Features	Operation parameters	Ecology
	FOM ZINTHIUM 302 EU AS AM	$\mu = 0.12 - 0.18$ for black aspect. Approvals: Renault, Renault Trucks, FCA	90 -100 %	
Cross Linking Fastener Top Coats friction modified	FINICOAT 412	Solvent based, clear curing top coat for fasteners ($\mu \approx 0.12$)	100 %	
Top Coats/ Sealers non fastener applications	FINIGARD 460 / 460 GUF EU AS AM	Very high corrosion resistance, UV resistant, 80-90°C drying. Approvals: Massey Ferguson, VW, PSA, Brose, Renault, INA Schäßler, Toyota, Royal Enfield, Tata, Volvo Cars, Delphi, GM	25 - 50 %	
	FINIGARD 469 EU	Very high corrosion resistance, UV resistant, 80-90°C drying	15 - 30 %	
	FINIGARD 200A EU AS AM	Economical protection on Zn & alloys. Approvals: TRW Lucas, Continental Teves, Bajaj Auto, Akebono, GM	5 - 20 %	
	FINIGARD 305	Decorative aspect rack sealer. Reduced last drop, eliminates iridescence	15 – 20 %	
	FINIGARD 419 PH EU AS AM	High $\mu = 0.19 \pm 0.04$, high corrosion resistance, easy to strip, rack or barrel	15 – 40%	

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System Type	Process Name	Description / Key Features	Operation parameters	Ecology
	FINIGARD 205A EU AS AM	Corrosion inhibitor for unplated areas. Used alone or with Finigard 460/401	30 - 70 ml/l	
	FINIGARD 503	Brake caliper top coat	80 – 100 ml/l	
	FINIGARD 505	Brake caliper top coat, improved flow behaviour	50 – 80 ml/l	
microGLEIT Lubricants	DF 903	Truck nuts, screws and nuts and special applications ($\mu \approx 0.14$) Approvals: BMW, Daimler, Porsche, Borg Warner, Fischer, Ribe	1:1 – 1:3 (Product : H ₂ O)	
	DF 905	Specialty dry film lubrication for Aluminum fasteners Approvals: Audi, BMW, Volkswagen, Daimler, Nedschroeff, Porsche, Ribe	1:1 – 1:3 (Product : H ₂ O)	
	DF 911	Universal dry film lubrication ($\mu = 0.09 - 0.15$) for Automotive threaded connections and wood- and chipboard screws Approvals: Audi, ABC, Würth, Heco, Wirox, BMW, Volkswagen, Daimler, Beteo, Ribe, Nedschroeff, Hewi, Kamax, Porsche, Bosch, Ejot, SWG, Arnold, etc.	1:1 – 1:4 (Product : H ₂ O)	

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System Type	Process Name	Description / Key Features	Operation parameters	Ecology
	DF 921	<p>Universal specialty dry film lubrication ($\mu = 0.09 - 0.14$) for stainless steel-, thread forming- and cutting screws and lock nuts</p> <p>Approvals:</p> <p>Audi, ABC, Würth, Heco, BMW, Volkswagen, Daimler, Ribe, Nedschroeff, Hewi, Kamax, Porsche, Bosch, Ejot, SWG, Arnold, Renault, Kamax, SGL Brakes, Keller+Kalmbach, Schuhmacher, Fischer, Böllhoff, etc.</p>	<p>1:1 – 1:3 (Product : H₂O)</p>	
	DF 931	<p>Specialty polymer dry film lubrication for stainless steel-, thread forming- and cutting screws</p> <p>Approvals:</p> <p>Audi, BMW, Volkswagen, Daimler, Nedschroeff, Ribe, Porsche, Ejot, Arnold, Würth, Böllhoff, Hewi, ABC, Porsche, ZF</p>	<p>1:1 – 1:2 (Product : sH₂O)</p>	
	DCP 9300	<p>High end top coat for phosphated fasteners. Excellent dry to touch replacement for typically used oils for Zn-Phosphates</p> <p>Approvals:</p> <p>BMW, Volkswagen, Daimler, Brugola, Nedschroeff, Porsche, Ribe, Kamax</p>	<p>100% – 1:1 (Product : H₂O)</p>	

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System Type	Process Name	Description / Key Features	Operation parameters	Ecology
	DF 977 Spray	<p>The universal adjusting tool for all surfaces ($\mu = 0.10 - 0.12$)</p> <p>Approvals:</p> <p>Used by many automotive companies (e.g. VW TL 52132)</p>	As is	

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