INDEX

SURFACE CONDITIONING

ALKALINE SOAK CLEANERS

PROCESS	COMPOSITION AND CONDITIONS	FERROUS	NON-FERROUS	APPLICATIONS AND FEATURES
SURFOLIN SK – 40	SURFOLIN SK – 40	: 50 – 80 g/l	: 25 – 30 g/l	• Heavy duty alkaline soak cleaner for ferrous and Nonferrous metals.
	Temperature	: 65 - 80ºC	: 65 - 80ºC	
	Time	: 2 – 5 mins	: 2 – 5 mins	
SURFOLIN U – 25	SURFOLIN U – 25	: 20 – 50 g/l	: 20 – 50 g/l	• High efficiency cleaner suitable for ferrous and nonferrous metals including Zinc base diecasting.
	Caustic Soda (optional)	: 10 – 20 g/l	—	• Designed for use as soak and electrolytic cleaner.
	Temperature	: 60 – 85ºC	: 60 – 70ºC	• Excellent emulsifying power and has a longer bath life.
	Current density	—	: 1 – 4 A/dm^2	
SURFOLIN EC – 54	SURFOLIN EC – 54	: 50 – 100 ml/l	: 50 – 100 ml/l	• A versatile liquid soak cleaner used along with Sodium Hydroxide for efficient soak cleaning of steel.
	Sodium Hydroxide	: 20 – 60 g/l	—	• Can replace solvent cleaning.
	Temperature	: 80 – 90ºC	: 60 – 70ºC	
	Time	: 2 – 5 mins	: 2 – 4 mins	
SURFOLIN POWERPACK	SURFOLIN POWERPACK	: 1 – 5 ml/l.	—	• Increases the efficiency of any cleaning bath to a considerable extent.
	Soak cleaner	: 40 – 80 g/l		• An economical version.
	Temperature	: Ambient - 80ºC		• Can be added to any alkaline soak cleaner.
	Time	: 2 – 5 mins		

ALKALINE ELECTROLYTIC CLEANERS

SURFOLIN EL – 80	SURFOLIN EL – 80	: 60 – 90 g/l	• Heavy duty chelated alkaline cleaner for ferrous metals.
	Temperature	: 60 – 70ºC	• Can be used as a cathodic cleaner for activating passive nickel electrodeposit.
	Time	: 2 – 5 mins	
	Current density	: 5 – 10 A/dm^2	
SURFOLIN MZ – 82	SURFOLIN MZ – 82	: 60 g/l	• Used as a soak and elecrolytic cleaner on variety of metals. Ideal for Zinc base diecasting and Brass parts.
	Temperature	: 70 – 80ºC	
	Time	: 1– 5 mins	
	Current density	: 1 – 4 A/dm^2	
SURFOLIN BC – 538	SURFOLIN BC – 538	: 30 – 60 g/l	• Good cathodic cleaner for Copper and Brass.
	Temperature	: 40 – 50ºC	• Can also be effectively used as a anodic cleaner for Copper and Brass.
	Time	: 30 secs. – 3 mins	
	Current density	: 1 – 3.5 A/ dm2	
SURFOLIN EL – 381	SURFOLIN EL – 381	: 60 – 120 g/l	• Effective in removing tenacious scale produced by carburizing, case hardening and general geat treating steel parts.
	Temperature	: 75 – 95ºC	• Reduces the time required to achieve a clean metal surface.
	Time	: AS REQUIRED	• It is also quite economical and is cyanide free.
	Current density		
	Rack	: 6 V	
	Barrel	: 12 V	

ELECTROLYTIC ALKALINE DERUSTING

SURFOLIN NC – 924	SURFOLIN NC – 924	: 120 – 180 g/l	• An electrolytic scale and rust remover.
	Temperature	: Room	• Very good substitute for anodic acid etches.
	Time	: 2 – 5 mins	• Very good cleaner prior to electroless Nickel on steel.
	Current density	: 5 – 10 A/dm^2	• Non cyanide cleaner

SPRAY CLEANER

SURFOLIN SP – 167	SURFOLIN SP – 167	: 15 – 30 g/l	• Heavy duty chelated alkaline cleaner for ferrous metals.
	Temperature	: 60 – 90ºC	
	Spray Pressure	: 15 – 30 PSI	
	Time	: As per requirement	

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
ACID PICKLING & BRIGHTENING			
ACITEK 730	Acitek 730 Temperature Time	: 30 – 60 g/l : Room : 15– 30 secs.	• A dry acid salt used for making acid dips for removal of silicate and oxide films from ferrous and non ferrous metals to get better adhesion of subsequent electrodeposits.
ACID INHIBITOR - 3	ACID INHIBITOR – 3 Hydrochloric acid Temperature	: 10 – 20 ml/l : 30 - 40% by Vol. : Room	• An excellent inhibitor specially developed for Hydrochloric acid, Sulphuric acid pickling bath for steel to reduce the base metal attack during pickling. Suitable before zinc plating.
ACID INHIBITOR - 4	ACID INHIBITOR – 4 Hydrochloric acid Temperature	: 10 – 20 ml/l : 30 - 40% by Vol. : Room	• An excellent inhibitor specially developed for Hydrochloric acid, Sulphuric acid pickling bath for steel to reduce the bas metal attack during pickling. Suitable before nickel plating.
FUME REDUCER 194	Cyanide Copper baths Alkaline Zinc baths	: 3.0 – 4.0 ml/ltr. : 0.3 – 0.5 ml/ltr.	• Used extensively in hot cyanide copper plating baths with no problems like nodular growth at the edges. • Exceptionally stable in highly alkaline solution without salting outs and bath cloudiness.
ACITEK ACCELERATOR (PICKLE AID)	ACITEK ACCELERATOR Hydrochloric acid	: 5.0 – 10.0 ml/l. : 30 – 40% by vol.	• Aids in improving the tough scale in pickling bath.
ACITEK MZ – 52	Acitek MZ – 52 Temperature Time :	: 500 ml/l : 60 – 65ºC 10 – 45 secs.	• Brightening dip for Mazak components. • Zinc diecasting parts are brightened without attacking the base metal. • Smoothens the component and thus can produce glossy finish.
KEMBRITE BC – 20	Kembrite BC 20 Hydrogen Peroxide(35%) Temperature Time	: 50 – 100 ml/l : 100 ml/l : 30 - 50ºC : 1 – 10 mins. (depends on polish desired)	• Brightening dip for Brass & Copper components. • Smoothens the component and thus can produce glossy finish. • A dip in 5% Sulphuric acid is used after BC 20 to get a glossy finish.
COPPER PLATING PROCESS			
CYANIDE COPPER			
CUPRATEK ROCHELLE COPPER	CUPRATEK ROCHELLE COPPER SALT Temperature Current density	: 150 g/l : 45 – 50ºC : 2 – 3 A/dm^2	• Produces smooth deposits. • Ideally suitable for Zinc base diecastings.
CUPRATEK SUPER	Copper cyanide SODIUM POTASSIUM TARTARATE Potassium Cyanide CUPRATEK COMPOSITE BRIGHTENER **OR** CUPRATEK ALC 3 CUPRATEK ALC 4 Temperature Current density	: 70 – 75 g/l : 30 – 40 g/l. : 120 – 130 g/l : 2 – 4 ml/l **OR** : 7.5 – 8.5 ml/l : 5 – 6 ml/l : 50 – 60ºC : 3 – 5 A/dm^2	• Produces smooth bright deposits specially used for high current density operations. • Ideal product for copper plating on steel to be used for case hardening application. • Best product for barrel plating on Zinc base diecast components.
BRIGHT ACID COPPER			
CUPRAMAX AC 3182	Copper Sulphate Sulphuric acid CUPRAMAX AC 2082 CUPRAMAX AC 2083 CUPRAMAX AC 2084 Chloride Temperature Current density	: 175 – 250 g/l : 50 – 70 g/l : 4– 6 ml/l. : 0.3 – 0.6 ml/l. : 0.3 – 0.6 ml/l. : 75 – 150 ppm : 20 – 30ºC : 2 – 6 A/dm^2	• High performance bright acid copper electroplating bath. • Exceptional levelling and bright throwing power • Highly ductile and extremely bright deposits.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
CUPRAMAX AC 2882	Copper Sulphate Sulphuric acid CUPRAMAX AC 2882 CUPRAMAX AC 2883 CUPRAMAX AC 2884 Chloride Temperature Current density	: 175 – 250 g/l : 50 – 70 g/l : 4.0 – 6.0 ml/l. : 0.3 – 0.6 ml/l. : 0.3 – 0.6 ml/l : 70 – 140 ppm : 20 – 30ºC : 1– 6 A/dm^2	• Shows excellent levelling, coupled with good throwing power. • Give good corrosion resistance. • Highly ductile and extremely bright deposits.

NICKEL PLATING PROCESS

BRIGHT NICKEL

MAGNUM 897 BRIGHT NICKEL	Nickel Sulphate Nickel Chloride Boric Acid OMNI ADDITIVE 902/821 MAGNUM 897 BRIGHTENER Temperature pH Cathode current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 6– 10 ml/l : 0.2 - 0.4 ml/l : 50 - 60ºC : 4.2 – 4.6 : 2.0 – 4.0 A/dm^2	• A high performance addition agent system formulated to give highest degree of levelling, brightness, coverage and chrome receptivity. • Suitable for vat and barrel plating. • Very fast brightening and levelling properties.
HALLMARK B 30 NICKEL	Nickel Sulphate Nickel Chloride Boric Acid OMNI ADDITIVE 902 HALLMARK B 30 BRIGHTENER ANTIPIT A (Optional)	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 10 ml/l : 0.3 – 0.5 ml/l : 0.4 – 0.8 ml/l	• Extremely rapid rates of brightening and levelling. • Very ductile deposits. • Deposits are very active and suitable for subsequent plating. • Deposits are white in colour and pleasing in appearance. • A single maintenance system thus easy to control. • Extremely good for barrel plating.
HALLMARK AS-26 BRIGHT NICKEL	Nickel Sulphate Nickel Chloride Boric Acid OMNI ADDITIVE A-H OMNI ADDITIVE A-K HALLMARK AS-26 BRIGHTENER pH Temperature Cathode current density Anode current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 2.0 - 6.0 cc/l : 8.0 – 12.0 ml/l : 0.2 – 0.6 cc/l : 4.0– 4. : 50 – 65ºC : 2.0 – 6.0 A/sq.dm : 1.0 – 3.0 A/sq.dm	• HALLMARK AS - 26 process is an ultra high performance addition agent system for bright nikel plating. • The process has been formulated to give superior levelling, brightness, coverage, better chrome.
HALLMARK -7100	Nickel Sulphate Nickel Chloride Boric Acid MAGNUM ADDITIVE 821 HALLMARK -7100 ANTIPIT A pH Temperature Cathode current density Anode current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 6.0– 8.0 cc/l : 0.2 – 0.4 cc/l : 0.8-1.6 cc/l : 4.0 – 4.6 : 50 – 65ºC : 2.0 – 6.0 A/sq.dm : 1.0 – 3.0 A/sq.dm	• Process is an ultra high performance addition agent system for bright nikel plating. • The process has been formulated to give superior levelling, brightness, coverage, better chrome. • The non-conducting phosphate coating beneath an oil film also serves as a corrosion barrier.
OMNI LEVELLER 904/944	OMNI LEVELLER 904/944	: 0.2 – 0.5 ml/l	• An addition agent for Bright Nickel which can be used to impart additional levelling on poorly polished surfaces.
METAKURE 834/842	METAKURE 834/842	: 0.2 – 0.8 ml/l	• A purifier for Bright Nickel solutions to improve tolerance to metallic impurities like dissolved Copper and Zinc.
TRIPLE ACTION 300	TRIPLE ACTION 300	: 0.2 – 0.8 ml/l	• An extra-ordinary product which gives high tolerance to metallic impurities like Zinc and Copper. • Eliminates frequent time consuming electrolytic dummying. Improves the Nickel coverage even at recessed areas.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
OMNI NICKEL PURIFIER 805	OMNI NICKEL PURIFIER 805	: 25gms/ 1000 litres of solution in filter pump.	• An insoluble filter media to use in filter packs to remove metallic impurities from Nickel plating bath. • Regular usage eliminates high PH treatment and electrolytic dummying.
OMNI BLACK NICKEL PROCESS	Nickel Sulphate Nickel Chloride Boric Acid Temperature pH Current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 30 – 50ºC : 5.2 – 5.8 : 0.1 – 1.0 A/dm^2	• The process produces pleasing black coloured deposit which has a good decorative appearance. • Particularly suitable for components such as camera fittings, optical, electrical instruments, novelty jewellery articles and metal name plates.
HALLMARK 3297 BRIGHT NICKEL	Nickel Sulphate Nickel Chloride Boric Acid OMNI ADDITIVE 821 HALLMARK 3297 BRIGHTENER ANTIPIT A (Optional) Temperature pH Cathode current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 6– 8 ml/l : 0.2– 0.4 ml/l : 0.4– 0.8 ml/l : 50 – 65ºC : 4.2 – 4.6 : 2.0 – 6.0 A/dm^2	• Ultra high performance bright nickel system. • Versatile brightner system. • Gives excellent results in vat nickel formulations.
DUPLEX, TRIPLEX & MICROPOROUS NICKEL CLASSIC SEMI			
CLASSIC SEMI BRIGHT BRIGHT NICKEL PROCESS	Nickel Sulphate Nickel Chloride Boric Acid CLASSIC NO. 1 CLASSIC NO. 2 CLASSIC NO. 3 pH Temperature Current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 6.0 – 10.0 ml/l : 0.6– 1.2 ml/l : 0.2 – 0.4 ml/l : 3.5 – 4.0 : 50 – 60 ºC : 2.0 – 6.0 A/dm^2	• The new classic semibright nickel process is based on advanced technology designed to produce high corrosion resistant semi bright nickel deposit. • Ideal for duplex nickel and triplex nickel plating system which has a special advantage providing millivolt difference more than 120 mV. • Production proven process used extensively in fully automatic installations.
CLASSIC NIPURA PROCESS	Nickel Sulphate Nickel Chloride Boric Acid CLASSIC NIPURA ADDITIVE Temperature pH Current density	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 8– 14 ml/l : 50 – 60 ºC : 3.6– 4.0 : 3.0 – 4.0 A/dm^2	• Used as an intermediate layer between semibright and bright nickel deposit. • Provides high sulphur nickel deposit below the Bright Nickel to prevent pit type corrosion to the base metal. • Widely used in fully automatic installations for plating cycle and Motor cycle components.
TEKNOPOROUS NICKEL	Nickel Sulphate Nickel Chloride Boric Acid Teknoporous NI 63BR Teknoporous NI 210 Teknoporous NI 218 Teknoporous NI EPC Teknoporous NI PC Antipit 2000A (optional)	: 275 – 325 g/l : 50 – 60 g/l : 40 – 50 g/l : 0.1 – 0.4 ml/l : 8.0 – 15 ml/l : 4.0 – 6.0 ml/l : 1.5 – 5.0 g/l : 0.5 – 1.5 g/l : 1 – 3 ml/l	• New advanced technology designed to produce higher corrosion resistance compared to single/ double nickel layer system. • Very receptive to chrome. • Wide bath chemistry.
SATIN NICKEL			
SILKEN NICKEL 250 BRK PROCESS	Nickel Sulphate Nickel Chloride Boric Acid Silken Nickel Additive 250A Silken Nickel Additive 250B SILKEN Nickel Additive 250 BRK pH Value Density Temperature Cathode current density Anode current density Agritation	: 425 – 475 g/l : 35 – 45 g/l : 35 – 45 g/l : 15 – 20 ml/l : 6 – 10 ml/l : 0.2 - 0.4 cc/l : 4.0 – 4.3 : 32– 35ºBe : 50 – 60ºC : 4– 8A/dm^2 : 1 – 3 A/dm^2 : Cathode movement	• The process is developed mainly for barrel articles. • Process has been developed to produce nonglaring silky, stain-free, attractive, Satin Nickel deposits. • Deposits have a good chrome reception to give an anti-tarnish topcoat to the products.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
SILKEN NICKEL PROCESS	Nickel Sulphate	: 425 – 475 g/l	• Developed to produce non glaring, silky, stain-free attractive satin Nickel deposits. • Suitable for rack plating only. • Various satinizing effects can be achieved by varying Silken Nickel Additive 549 concentration.
	Nickel Chloride	: 35 – 45 g/l	
	Boric acid	: 35 – 45 g/l	
	SILKEN Nickel Additive 245	: 15 - 20 cc/l	
	SILKEN Nickel Additive 246	: 6 - 10 cc/l	
	SILKEN Nickel Additive 549	: 0.2 - 0.4 cc/l	
	pH Value	: 4 - 4.3	
	Density	: 32 - 35°Be	
	Temperature	: 50 – 60ºC	
	Cathode current density	: 4 – 8 A/dm^2	
	Anode current density	: 1 – 3 A/dm^2	
	Agitation	: Cathode rod movement.	

ELECTROLESS NICKEL PROCESS

KEMTEK NI 308	Kemtek ni 308 A	: 60 ml/l	• Eco-friendly process. • Does not contain any toxic material. • Hardness afterheat treatment 900-1000 VPN. • Highly consistent and easily controlled process.
	Kemtek ni 308 b	: 90 ml/l	
	Deionized or distilled water	: 850 ml/l	
	For maintenance	: Equal volumes of : Kemtek NI 308 A & : Kemtek NI 308 C	
	Temperature	: 82 – 91 ºC	
	pH (electronic)	: 4.2– 5.5	
	Nickel metal	: 5– 6 g/l	
	Agitation	: Mild Air Agitation	
KEMTEK NI 508	KEMTEK NI 508 A	: 60 ml/l	• A bright highly stable electroless Nickel system designed to produce hard, corrosion resistant coatings having phosphorus content in excess of 7% by weight.
	KEMTEK NI 508 B	: 90 ml/l	
	KEMTEK NI 508 C	: only for replenishment	
	pH	: 4.2 – 5.5	
	Temperature	: 82 – 91 ºC	
KEMTEK NI 512	KEMTEK NI 512 A	: 60 ml/l	• A semibright highly stable electroless Nickel system designed for high corrosion resistance applications having phosphorus content in excess of 10 – 12% by weight.
	KEMTEK NI 512 B	: 180 ml/l	
	KEMTEK NI 512 C	: only for replenishment	
	pH	: 4.6 – 5.2	
	Temperature	: 86 – 92 ºC	
KEMTEK NI 516	KEMTEK NI 516A	: 100 ml/l	• A semibright highly stable electroless Nickel system designed for high corrosion resistance applications having phosphorus content in excess of 10 – 12% by weight.
	KEMTEK NI 516 B	: 100 ml/l	
	KEMTEK NI 516 C	: only for maintenance	
	pH	: 6.1 – 6.4	
	Temperature	: 60 – 80 ºC	
	Nickel Metal	: 5.2 – 6.0	
	Agitaitoin	: Mild air agitation.	

NIK-FREE PLATING PROCESS

YELLOW BRONZE PLATING

DUROALLOY YBM PROCESS	Copper Cyanide	: 28.0 g/l	• Duralloy YBM Process produces brilliant, gold-coloured, ductile bronze deposits with excellent leveling. • The coating has a good corrosion resistance. • Also used as a substitute for gold plating (gold imitation).
	Zinc Cyanide	: 3.5 g/l	
	Potassium Cyanide	: 85.0 g/l	
	Potassium hydroxide	: 18.0 g/l	
	Sodium Stannate	: 35.0 g/l	
	Sodium Carbonate	: 10.0 g/l	
	Duralloy YBM 102 A	: 50.0 g/l	
	Current density Cathode	: 2 – 4 A/dm^2	
	Current density anode	: 2 – 4 A/dm^2	
	pH - Value	: 12.5 – 13	
	Temperature	: 45 – 55 ºC	

PROCESS	COMPOSITION AND CONDITIONS	APPLICATIONS AND FEATURES
WHITE BRONZE PLATING		
DUROALLOY 2820 WMU	Copper Cyanide : 17.0 g/l Zinc Cyanide : 5.0 g/l Potassium Cyanide : 85.0 g/l Potassium hydroxide : 25.0 g/l Sodium Stannate : 60.0 g/l Sodium Potassium Tartarate : 150.0 g/l Ammonium Carbonate : 10.0 g/l Duoralloy Additive : 30.0 cc/l Duroallloy Wetting Agent : 5.0 cc/l Current density : 1.0 – 4.0 A/dm^2 Temperature : 55 – 65 ºC pH : 12 – 14	• Eye Glass frames - Bangles, buttons costume earrings posts, Nickel-free jewellery, door knobs, watch glass etc. • Highly economical alternative for palladium coating. • It is used in connector field as well as electronic application because of higher electrical conductivity then pure silver.
TIN COBALT PROCESS (CHROME LIKE)		
SKYLARK TCM PROCESS	Tin Pyrophophate : 15 g/l Cobalt Sulphate : 4 g/l Potassium Pyrophosphate : 100 g/l SKYLARK TCM MAKE-UP : 40 – 50 ml/l Cathode current density : 0.2 – 1.0 A/dm^2 Temperature : 45 – 55ºC PH : 8.5 – 9.0 Plating time : 1 – 5 mins. Anode : Carbon or Tin plate Agitation : Cathode rod movement.	• Bright deposits colour resembles chrome colour. • Excellent covering power & thus suitable for barrel plating. • Does not contain any toxic material & easy for waste treatment.
HEXAVALENT CHROME PLATING PROCESS		
SUPERSTAR HARD CHROME	Superstar make up salt : 250 g/l Temperature : 50 – 60 ºC Cathode : 20 – 60 A/dm^2	• Suitable for internal plating of diesel engine cylinders. • Higher efficiency, higher hardness upto 1100 VPN. • No etching. • Micro crack deposits greater than 40 cracks/mm. • Higher current efficiency (23 – 26%)
MISTONIL	MISTONIL : 0.75 – 1.0 g/l	• Fume supressor for all types of chrome plating baths to suppress the fumes. • Provides good foam blanket.
ARMOUR H.S. CHROME	ARMOUR H. S. : Hard : Decorative CHROME SALT : 230–250 g/l : 200– 300 g/l DECOREX CONDUCTING SALT : 5 – 10 g/l. : 5 – 10 g/l. Temperature : 50 – 65 ºC : 40 – 50 ºC Current density : 15 – 35 A/dm^2 : 15 – 30A/dm^2	• A high speed chrome bath which employs a special mixed soluble catalyst, meets the modern requirements of hard and bright chrome. • A self regulating chrome process. • Better covering and throwing power than conventional chrome.
ARMOUR BK CHROME (BLACK CHROME)	ARMOUR BK CHROME SALT : 350 – 400 g/l ARMOUR BK CHROME ADDITIVE : 8 – 10 g/l Temperature : 18 – 25 ºC Current density : 30 – 40 A/dm^2	• Black chrome deposits with high corrosion resistance for functional & decorative applications.Good thermal stability and hence can be used for high temperature applications. • Good process for plating solar panels.
NUTRA CHROME	NUTRA CHROME : 50 g/l Temperature : Room Time : 30 sec - 2 min.	• Hexavalent chromium neutralizer, used after plating to remove chrome traces from chromium plated components.
MICROSTAR	MICROSTAR CHROME SALT : 250 g/l MICROSTAR ADDITIVE -213 : 20 g/l MICROSTAR ADDITIVE A-15 : 7.5 ml/l Temperature : 48 to 52 ºC Current Density : 15 – 25 A/dm^2	• Outstanding aspect is haze and cloud free finish. • Only 5 minutes required for getting desirable microcrack pattern. • Easy control and maintenance. • Total thickness of Nickel can be reduced by 20 - 25% without compromising the durability.

PROCESS	COMPOSITION AND CONDITIONS	APPLICATIONS AND FEATURES

TRIVALENT CHROME PLATING PROCESS

TRISTAR

TRISTAR CONDUCTIVITY SALT : 280 g/l
TRISTAR REPELNISHER : 200 ml/l
TRISTAR MAKE-UP : 10 ml/l
TRISTAR WETTING AGENT : 1 ml/l
pH : 3.3–3.8
Temperature : 45 – 60ºC
Current Density : 3 – 6 A/dm²

- Environment Friendly.
- Hexavalent chrome free process.
- Gives attractive light colour deposit.
- Good throwing and metal distribution.

ZINC PLATING PROCESS

CYANIDE ZINC PLATING PROCESS

TEKNOBRITE CZ 1320 BRIGHTENER

Zinc Oxide : 38 - 45 g/l
Sodium Cyanide : 80- 90 g/l
Sodium Hydroxide : 65 – 75 g/l
TEKNOBRITE 1320 CZ BRIGHTENER : 1 – 2 ml/l
PURISOL : 3 – 5 ml/l
Current Density Rack : 1.0 – 5.0 A/dm²
Barrel : 0.5 – 1.6 A/dm²

- Excellent brightner system suitable for low, medium and high Cyanide Zinc bath formulations.
- Have extreme low current density brightness and hence suitable for plating complicated shaped components and for barrel plating.
- Can work well even with low dosage of brightner thus becomes very economical.
- Can work at high temperature

TEKNOBRITE LCZ 2225 BRIGHTENER

Zinc Oxide : 38 - 45 g/l
Sodium Cyanide : 80- 90 g/l
Sodium Hydroxide : 65 – 75 g/l
TEKNOBRITE LCZ 2225 BRIGHTENER : 1– 3 ml/l
PURISOL : 2 – 4 ml/l
Current Density Rack : 0.5 – 5.0 A/dm²
Barrel : 0.3 – 1.6 A/dm²

- Ultra high performance cyanide zinc system effective even for extremely low cyanide.
- Has high temperature tolerance and hence ideal for barrel installation
- Suitable brightener system.
- Suitable for vat and Barrel plating

TEKNOBRITE CZ 1360 BRIGHTENER

Zinc Oxide : 38 - 45 g/l
Sodium Cyanide : 80- 90 g/l
Sodium Hydroxide : 65 – 75 g/l
Current Density Rack : 1.0 – 5.0 A/dm²
Barrel : 0.5 – 1.6 A/dm²

- Excellent brightner system suitable for low, medium and high Cyanide Zinc bath formulations.
- Have extreme low current density brightness and hence suitable for plating complicated shaped components and for barrel plating.
- Can work well even with low dosage of brightner thus becomes very economical.
- Can work at high temperature

BRIGHT ACID ZINC PLATING PROCESS

TEKNOBRITE AZ 1245 SYSTEM

Zinc Chloride : 80 – 150 ml/l
Potassium Chloride : 200 – 280 g/l
Boric Acid : 25 – 35 g/l
TEKNOBRITE AZ 1098 M : 30 – 50 ml/l
TEKNOBRITE AZ 1098 R : 0.2 – 0.4 ml/l
pH : 4.8 – 5.2
Temperature : 20 – 45 ºC
Current density : 0.5 – 5 A/dm²

- A highly stable brightner system.
- Addition agents have excellent bath solubility
- Can work the bath at fairly high current density.
- Most suitable bath for vat or continuous wire plating.
- Produces excellent haze free bright deposit.

TEKNOBRITE AZ 1054 SYSTEM

Zinc Chloride : 80 – 150 ml/l
Potassium Chloride : 200 – 280 g/l
Boric Acid : 25 – 35 g/l
TEKNOBRITE AZ 1054 M : 30 – 40 ml/l
TEKNOBRITE AZ 1054 R : 0.4 – 0.8 ml/l
pH : 4.2 – 5.0
Temperature : 25 – 45 ºC
Current density : 0.5 – 5 A/dm²

- The process has an excellent low c.d brightness and hence proved to be an ideal process for barrel plating.
- Due to the wide density current range the process can plate easily complex shapes with both high and low current density areas on vats and also in barrels
- Teknobrite AZ 1054 additives and brighteners have unsurpassed solution solubility and no oil out problems, even at higher temperatures.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
TEKNOBRITE HPTS 1085 SYSTEM	Zinc Chloride	: 80 – 150 ml/l	• A new generation Chloride Zinc process designed to produce spectacular bright ductile Zinc deposits. • Bath has a very wide current density range and hence suitable for Vat and Barrel plating. • The brightner system is so designed so as to have a high thermal stability and very economical to use.
	Potassium Chloride	: 200 – 280 g/l	
	Boric Acid	: 25 – 35 g/l	
	TEKNOBRITE AZ 1085 M	: 25 – 35 ml/l	
	TEKNOBRITE AZ 1085 R	: 0.3 – 0.6 ml/l	
	pH	: 4.8 – 5.2	
	Temperature	: 20 – 40 ºC	
	Current density	: 0.5 – 5 A/dm^2	
TEKNOBRITE AZ 1068 SYSTEM	Zinc Chloride	: 80 – 150 ml/l	• A high performance low foaming chloride zinc process. • Very economical process. • Process can be operated regularly under warm conditions. • Fully water soluble additive system.
	Potassium Chloride	: 200 – 280 g/l	
	Boric Acid	: 25 – 35 g/l	
	TEKNOBRITE AZ 1068 M	: 30 – 50 ml/l	
	TEKNOBRITE AZ 1068 R	: 0.6 – 1.5 ml/l	
	pH	: 4.6 – 5.0	
	Temperature	: 25 – 40 ºC	
	Current density	: 1 – 4 A/dm^2	
TEKNOBRITE AZ 3088 SYSTEM	Zinc Chloride	: 80 – 150 ml/l	• Uniform process for rack and continuous wire plating. • Faster brightness. • Higher cloud point.
	Potassium Chloride	: 200 – 280 g/l	
	Boric Acid	: 25 – 35 g/l	
	TEKNOBRITE AZ 2098 M	: 30 – 50 ml/l	
	TEKNOBRITE AZ 2098 R	: 0.2 – 0.4 ml/l	
	PH	: 4.6 – 5.0	
	Temperature	: 25 – 40 ºC	
	Current density	: 1 – 4 A/dm^2	
ALKALINE NON-CYANIDE ZINC PROCESS			
MILLENIUM NCZ 511 PROCESS	Zinc Oxide	: 12 – 15 g/l	• A unique technology for alkaline, cyanide-free zinc problem of delayed blistering • Deposits produced are fully bright, levelled and ductile over a broad current density range and can be used for both vat & barrel applications. • Excellent distribution and covering power. • No costly equipment required. • Produces very ductile deposits and eliminates the problem of delayed bliste
	Sodium Hydroxide	: 100 – 140 g/l	
	Sodium Carbonate	: 30 g/l	
	MILLENIUM NCZ 511 A	: 12.0– 20.0 ml/l	
	MILLENIUM NCZ 511 B	: 0.5 – 3.0 ml/l	
	MILLENIUM NCZ 511 C	: 1.0 – 2.0 ml/l	
	MILLENIUM NCZ CONDITIONER	: 8.0 – 20 ml/l	
	Current density (Rack)	: 1.0 – 3.0 A/dm^2	
	(Barrel)	: 0.5 – 1.5 A/dm^2	
	Voltage (Rack)	: 3 – 6 V	
	(Barrel)	: 9 – 16 V	
MILLENIUM NCZ 611 PROCESS	Zinc Oxide	: 12 – 15 g/l	• Produces very ductile deposits and eliminates the plating. • Deposits produced are fully bright, levelled and ductile over a broad current density range and can be used for both vat & barrel applications. • Excellent distribution and covering power. • No costly equipment required. • A unique technology for alkaline, cyanide-free zinc plating
	Pottasium Hydroxide	: 140 – 170 g/l	
	Potassium Carbonate	: 40 g/l	
	MILLENIUM NCZ 611 A	: 10.0– 15.0 ml/l	
	MILLENIUM NCZ 611 B	: 0.5 – 2.0 ml/l	
	MILLENIUM NCZ 611 C	: 1.0 – 2.0 ml/l	
	MILLENIUM NCZ CONDITIONER	: 8.0 – 20 ml/l	
	Current density (Rack)	: 1.0 – 3.0 A/dm^2	
	(Barrel)	: 0.5 – 1.5 A/dm^2	
	Voltage (Rack)	: 3 – 6 V	
	(Barrel)	: 9 – 16 V	
ZINC ALLOY PLATING			
TEKNOBRITE COZ 1045 COBALT-ZINC ALLOY PLATING PROCESS	Zinc Chloride	: 130 – 150 ml/l	• A unique cobalt-zinc alloy plating process which gives two to three time better corrosion resistance than available from zinc deposits of equal thickness. • Exceptionally bright deposits & can be used for both vat &barrel applications. • Produces high quality deposits and meets international specifications.
	Potassium Chloride	: 280 – 320 g/l	
	Boric Acid	: 25 – 35 g/l	
	TEKNOBRITE AZ 1045 COM	: 40 – 60 ml/l	
	TEKNOBRITE AZ 1045 COR	: 0.1 – 0.4 ml/l	
	TEKNOBRITE AZ 1045 COL	: 10 – 20 ml/l	
	pH	: 5.0 – 5.4	
	Temperature	: 21 – 35 ºC	
	Current density	: 1.2 – 2.5 A/dm^2	

PROCESS	COMPOSITION AND CONDITIONS			APPLICATIONS AND FEATURES
TEKNOBRITE ZR – 205	Zinc Oxide		: 12 – 15 g/l	• TEKNOBRITE ZR – 205 process is a unique Zinc-Iron alloy plating process to give higher corrosion resistance and ductile and uniform distribution from high to low current density area. • The process does not produce corrosive acid fumes and is operated for both rack & barrel plating.
	Sodium Hydroxide		: 100 – 140 g/l	
	TEKNOBRITE ZR –205 STARTER		: 7 – 10 ml/l	
	TEKNOBRITE ZR – 205 SOLUBILIZER		: 55 – 70 ml/l	
	TEKNOBRITE ZR – 205 A		: 10 – 15 ml/l	
	TEKNOBRITE ZR – 205 B		: 0.1 – 0.2 ml/l	
	TEKNOBRITE ZR – 205 C		: 0.8 – 1.5 ml/	
	Temperature		: 20 – 30 °C	
	Current density	(Rack)	: 1.0 – 3.0 A/dm^2	
		(Barrel)	: 0.5 – 1.5 A/dm^2	
	Voltage	(Rack)	: 3 – 6 V	
		(Barrel)	: 8 – 16 V	
TEKNOBRITE ZINIK 15 ZINC – NICKEL ALLOY PLATING PROCESS	Zinc Oxide		: 10 – 15 g/l	• A cyanide-free alkaline process, producing bright zinc-nickel deposits with a nickel content of 10 – 15 % • The process has excellent throwing power and metal distribution suitable for both vat & barrel applications. • Excellent corrosion resistance.
	Sodium Hydroxide		: 100 – 140 g/l	
	TEKNOBRITE ZINIK BASE A		: 100 – 140 ml/l	
	TEKNOBRITE ZINIK BASE B		: 12 - 16 ml/l	
	TEKNOBRITE ZINIK BRIGHTNER		: 5 – 7 ml/l	
	TEKNOBRITE ZINIK CARRIER ADDITIVE		: 1.2 – 2.0 ml/l	
	TEKNOBRITE ZINIK ADDITIVE		: 0 – 2 ml/l	
	Temperature		: 20 – 27 °C	
	Current density	(Rack)	: 1.0 – 3.0 A/dm^2	
		(Barrel)	: 0.8 – 1.2 A/dm^2	
	Voltage	(Rack)	: 12 – 18 V	
		(Barrel)	: 5 – 10 V	

CHROMATE CONVERSION COATINGS

HEXAVALENT CHROMATE

KEMPAS BL – 15	KEMPAS BL – 15	: 4.0 – 8.0 g/l	• Blue Zinc passivation on zinc coatings for better corrosion resistance.
	Nitric acid	: 10 – 15 ml/l	
	Time	: 5 – 15 secs.	
	pH	: 0.5 – 1.5	
KEMPAS IR- 752	KEMPAS IR - 752	: 15– 25 ml/l	• Produces yellow iridescent chromate conversion zinc plating for betterr corrosion resistance. • Suitable for deposits produced from cyanide zinc and chloride zinc.
	Nitric acid	: 2 – 4 ml/l	
	pH	: 1.2 – 1.8	
	Time	: 5 - 30 secs.	
	Temperature	: Room	
KEMPAS OLIVE 862	KEMPAS OLIVE 862	: 60 – 120 ml/l	• Produces Olive green chromate conversion coatings on chloride zinc deposits. • Corrosion resistance of over 150 hours in salt spray. • Suitable for use in automatic plating installations.
	Time	: 30 – 90 secs.	
	pH	: 0.8 – 1.2	
KEMPAS BK – 66	KEMPAS BK – 66A	: 80 – 120 ml/l	• Produces a uniform jet black coating on zinc, zinc die casting and zinc plate. • Good corrosion and abrasion resistance
	KEMPAS BK – 66B	: 80 – 100 ml/l	
	Distilled water	: To make up 1 ltr.	
	Time	: 60 – 120 secs.	
	pH	: 1.2 – 2.0	
KEMPAS BK -266	KEMPAS BK – 266A	: 80 – 120 cc/l	• Coatings produced by KEMPAS BK 266 solutions afford good corrosion and abrasion resistance, resist stains and finger prints and serve as an excellent base for paint and other organic finishes
	KEMPAS BK – 266B	: 80 – 100 cc/l	
	Temperature	: Room	
	Time	: 60 – 120 secs.	
	pH	: 1.2 – 2.5	
KEMPAS NL – 68	KEMPAS NL – 68	: 5 – 10 cc/l	• Contain no hexavalent chromium. • Consistently produces eye appealing turquoise finish. • Long bath life and hence extended dump frequency. • Economical and easy to use and maintain.
	Temperature	: Room Temperature	
	Time	: 15 – 30secs.	

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
KEMPAS ZR	KEMPAS ZR Distilled water Temperature Time pH	: 80 – 100 ml/l : To make up 1 ltr. : 15 – 25 ºC : 30 sec – 1 min. : 0.7 – 1.1	• Easy maintenance. • Produces uniform jet black coating on zinc-iron plating. • Good corrosion and abrasion resistance. • Being silver-free, the product is comparatively economical.
TRIVALENT CHROMATE			
KEMPAS BL 1600	KEMPAS BL 1600 Nitric acid pH Temperature Time	: 50 – 80 ml/l : 1.0 - 2.0 cc/l : 1.8 – 2.2 : 24 – 40 ºC : 20 – 60 secs.	• Clear blue trivalent chromium passivation. • Three times better corrosion resistance (80 - 100 hours) as compared to hexavalent chrome passivation. • Does not attack the zinc deposit and hence the solution has a long life.
TEKNOPAS BZ 74 AB	TEKNOPAS BZ 74 A TEKNOPAS BZ 74 B pH Rack Barrel Temperature Immersion time Rack Barrel	: 60 – 120 ml/l : 30 – 70 ml/l : 1.9 - 2.3 : 2.0 - 2.5 : 25 - 35 ºC : 45 - 75 secs. : 30 - 60 secs.	• Kempas BZ 74 A/B provides uniform, bright and black passivation film. • Kempas BZ 74 A/B does not contain silvers. • Kempas BZ 74 A/B has a long life in operation. • Kempas BZ 74 A/B has good adhesion for Artek Hyperzinc (non cyanide alkaline zinc) • The control of working solution is easy and it is available to use in automatic system.
KEMPAS BZ 174 AB	KEMPAS BZ 174 A KEMPAS BZ 174 B pH Rack Barrel Temperature Immersion time Rack Barrel	: 60 – 120 ml/l : 30 – 70 ml/l : 1.9 - 2.3 : 2.0 - 2.5 : 25 - 35 ºC : 45 - 75 secs. : 30 - 60 secs.	• Kempas BZ 174 A/B provides uniform, bright and black passivation film. • Kempas BZ 174 A/B does not contain silvers. • Kempas BZ 174 A/B has a long life in operation. • Kempas BZ 174 A/B has good adhesion for Artek Hyperzinc (non cyanide alkaline zinc) • The control of working solution is easy and it is available to use in automatic system.
KEMPAS YRT 380	KEMPAS YRT 380 A KEMPAS YRT 380 B Solution pH (electrometric) Solution temperature Immersion time	: 100 ml/l : 20 ml/l : 2.0 - 2.4 (increase pH by 10% NaOH & decrease by Nitric acid) : 40 ºC - 48 ºC : 30 – 60 secs.	• Iridescent yellow, Trivalent chromatic passivation produces consistent dark colour. • Can operate at room temperature and high temp.20 - 50 ºC • Neutral salt spray withstands more than 100 hrs. (white rust) • Economical
KEMPAS TRH-280	KEMPAS TRH-280 Solution pH (electrometric) Solution Temperature Immersion Time	: 120 ml/l. : 1.8 - 2.2 : 55 - 80 ºC : 30 - 90 secs.	• Produces thick greenish yellow iridescent chromate conversion coating by simple immersion. • Is suitable for passivation of zinc and zinc alloy deposit produced from cyanide, alkaline cyanide free and chloride zinc electrolytes and can be used in vat and barrel installations. • Provides good corrosion resistance of over 100 hrs to salt spray. • No hexavalent chromium, hence no costly effluent treatment required.
KEMPAS NBL-18	KEMPAS NBL – 18 SolutionpH Solution Temperature Immersion Time	: 50 - 80 cc/l. : 3.5 - 3.8 : Room : 20 – 60 secs.	• Produces clear white chromate coating on zinc nickel deposit. • Minimum rejection and high profitability. • Reduces waste treatment and disposal costs. • No extra expenses and easy to change over
KEMPAS YK - 85	KEMPAS YK 85 Solution pH Solution Temperature Time	: 120 cc/l. : 1.8 – 2.6 : 35 – 50 °C : 60 – 90 secs.	• Produces clear iridescentyellow chromate coating on zinc nickel deposit. • Reduces waste treatment and disposal costs. • Increases productivity. • Extends the useful life of plated components. • Easy to operate.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
TEKNOPAS BZ 1624 FCR	Teknopas BZ 1624 F Teknopas BZ 1624 C pH Immersion Time	: 180 – 220 ml/l : 100 – 140 ml /l : 1.9 – 2.4 (Barrel and Rack process) : 45 – 75 (Rack Process and Barrel process)	• Teknopas BZ 1624 FCR provides uniform bright, and black passivation film CZ rack process. • Teknopas BZ 1624 FCR does not contain silvers and hexavalent chromium. • The control of working solution is easy, and it is available to use in automatic system.
TEKNOPAS BZ 1625 JK	TEKNOPAS BZ 1625 J TEKNOPAS BZ 1625 K pH Temperature Immersion Time	: 100 – 140 ml/l : 60 – 100 ml/l : 2.0 – 2.4 : 25 – 40 ^{O}C : 30 – 60 sec	• TEKNOPAS BZ 1625 JK does not contain silver. • The control of working solution is easy, and it is available to build in automatic system. • TEKNOPAS BZ 1625 JK has good appearance on alkaline Zincate plating, especially on Barrel. • TEKNOPAS BZ 1625 JK has a long life to own wide capacity for those contaminations such as Zinc, Iron and to own low temperature in operation.
TEKNOPAS BZ 1625 FG	Teknopas BZ 1625 F Teknopas BZ 1625 G pH Temperature Immersion Time	: 30 – 50 ml/l : 50 – 100 ml/l : 2.0 – 2.8 : 35 – 45 ^{O}C : 30 – 60 sec	• TEKNOPAS BZ 1625 FG does not contain silver. • The control of working solution is easy, and it is available to build in automatic system.. • TEKNOPAS BZ 1625 FG has good appearance on Acid Zinc process both on rack and barell process gets bright speckled black.
TEKNOPAS BK 571 AB	Teknopas BK 571 A Teknopas BK 571 B pH Rack Barrel Temperature Immersion Time	: 60 – 100 ml/l : 2 – 40 ml/l : 1.8 – 2.2 : 2.0 – 2.4 : 25 – 35 ^{O}C : 30 – 90 sec.	• TEKNOPAS BK 571 AB does not contain hexavalent chromium and silver. • Duroseal 76 or Duroseal 78 as a post treatment process provides high corrosion resistance. • The control of working solution is easy, and it is available to build in automatic system. • TEKNOPAS BK 571 AB has good jet black color on Iron Zinc process on Rack and Barrel process.
TEKNOPAS TR 1345 AB	Teknopas TR 1345 A Teknopas TR 1345 B pH Temperature Immersion Time	: 100 – 200 ml/l : 60 – 120 ml/l : 1.8 – 2.2 : 20 – 40 ^{O}C : 20 – 80 sec.	• Teknopas TR 1345 provides uniform, bright passivation film. • Teknopas TR 1345 have an outstanding performance in salt spray test, offering protective surface more than yellow chromate. • Easy waste water treatment. Teknopas TR 1345 is not contain organic acid. • Same equipment and same treatment conditions for yellow chromate.

INORGANIC PROTECTIVE SEALANTS

DUROSEAL 4500	DUROSEAL 4500 Temperature Immersion time pH value Drying	: Room to 60°C : 30 secs. – 2 mins. : 7.0 – 8.0 : 60 – 70 ^{O}C	• An unique process for improving the corrosion resistance of clear chromate coating. • Suitable for both vat & barrel operations. • Easy to operate. • No clogging of holes and threads.
DUROSEAL 4600	DUROSEAL 4600 Temperature Immersion time PH value Drying	: Room : 30 secs. – 2 mins. : 7.0 – 8.0 : 60 – 70 ^{O}C	• Improves protection against corrosion of Zinc chromating coatings. • Clear non-etching liquid. • Free of complexing agents. • Does not leach the passivation coating. • Suitable for Vat & Barrel applications.
TEKNOSEAL 70	Teknoseal 70 Barrel Rack Temperature Dipping Time Drying	: 150 - 300 ml/l : 100 – 250 ml/l : 20 - 50 ^{O}C : 30 – 60 sec : 60 – 100^{O}C	• Teknoseal 70 have good corrosion resistance. • Easy waste water treatment • Teknoseal 70 doesn't contion Cr VI. • Teknoseal 70 works on clear and yellow chromate passivations.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
TEKNOSEAL 72	Concentration	: 50 ml/l ~ Full Strength	• Teknoseal 72 have good corrosion resistance. • Easy treatment operation by dipping. • Teknoseal 72 doesn't contion Cr VI. • Teknoseal 70 works on clear and yellow chromate passivations.
	Temperature	: 15 – 30 ^{O}C	
	Dipping Time	: 20 – 60 sec	
	Drying	: 60 – 100^{O}C	
TEKNOSEAL 76	Teknoseal 76 Barrel	: 50 - 250 ml/l	• Suitable for Barrel applications. • Applied only on black chromate coatings . • Easy to operate. • Improves corrosion resistance.
	Teknoseal 77	: 5 - 10 ml/l.	
	pH	: 3.8 - 5.5	
	Temperature	: 30 – 50 ºC	
	Immersion Time	: 5 - 10 secs	
	Drying	: 60 – 100^{O}C	
TEKNOSEAL 78	Teknoseal 78 Rack	: 20 - 80 ml/l	• Suitable for Rack applications. • Applied only on black chromate coatings . • Easy to operate. • Improves corrosion resistance.
	Teknoseal 77	: 5 - 10 ml/l.	
	pH	: 3.8 - 5.5	
	Immersion Time (sec)	: 5– 20	
	Temperature (^{O}C)	: 30– 50	
	Drying	: 60 – 100^{O}C	

ORGANIC PROTECTIVE COATINGS

DUROGUARD 2000	DUROGUARD 2000	: 2.5 – 5 % by vol.	• Advanced water base lacquer containing uniform disper sion of polymers and specially recommended for zinc protection of plated components and other applications. • Gives highest corrosion protection.
	Temperature	: Room	
	Immersion time	: 10 – 60 secs.	
	pH value	: 8.5 – 9.0	
	Drying temperature	: 60 – 70 ºC	
DUROGUARD 2200	DUROGUARD 2200	: 10 - 15 % by vol.	• A unique formula of protection against corrosion of zinc plating process. • Transparent water based coating. It leaves a very thin effective film. • Suitable for Vat & Barrel process
	Time	: 30 – 60 secs.	
	Temperature	: Room	
	pH	: 8.5 – 10	
	Drying	: 60 – 100^{O}C	

TIN AND TIN - LEAD ALLOY PLATING PROCESS

TEKNOLUME excellent **BRIGHT ACID TIN**	STANNOUS SULPHATE	: 20 – 30 g/l	• Produces easily solderable bright Tin deposits with tarnish and corrosion resistance. • Designed for vat and barrel plating. • Suitable as an etch resist coating for thru hole plating of PC boards.
	SULPHURIC ACID (C.P.)	: 90 – 110 ml/l	
	TEKNOLUME CARRIER ADDITIVE	: 30 – 40 ml/l	
	TEKNOLUME BRIGHTENER	: 2 – 4 ml/l	
	Temperature	: Room	
	Cathode Current	: 0.5 – 3.5 A/dm^2	
TEKNOSTAR BRIGHT ACID TIN PROCESS	TEKNOSTAR ADDITIVE	: 20 – 40 g/l	• Operating over a wide range • Highly stable electrolyte and does not undergo any changes during idling periods. • Excellent ductility and solderability even after storage. • Low brightner consumption.
	TEKNOSTAR BRIGHTNER	: 2 - 6 ml/l	
	Stannous Sulphate	: 24.0 – 35.0 g/l.	
	Sulphuric acid	: 90 - 110 ml/l	
	Temperature Rack	: 20 - 30 ºC	
	Barrel	: 25 ºC	
	Cathode current Rack	: 0.5 - 3.5 A/dm2	
	Density Barrel	: 0.5 - 1.0 A/dm2	
TEKNOSTAR – MHS	TEKNOSTAR – MHS 100/00 TEKNOSTAR – MHS 98/02 TEKNOSTAR – MHS 90/10 TEKNOSTAR – MHS 60/40	Details as per literature.	• It is designed for the operation at high current densities with low foaming working mode. • The coatings have excellent reflow & soldering properties.
TEKNOSTAR – BHS TIN & TIN ALLOY	TEKNOSTAR – BHS 100/00 TEKNOSTAR – BHS 98/02 TEKNOSTAR – BHS 90/10 TEKNOSTAR – BHS 60/40	Details as per literature.	• Designed for vat & barrel operation. • Produces bright deposits. • Excellent reflow & soldering properties.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
TEKNOTAR – HS TIN & TIN ALLOY	TEKNOSTAR – HS 100/00 TEKNOSTAR – HS 98/02 TEKNOSTAR – BHS 90/10 TEKNOSTAR – MHS 60/40	Details as per literature.	• Designed for operation at high current densities with low foam working mode. • Excellent reflow & soldering properties. • Developed for application at high speed plating installations.
ALTEK ALKALINE TIN PROCESS	ALTEK TIN SALT Temperature Voltage	: 100 g/l (Vat) : 200 g/l (barrel) : 60 – 80 ºC : 3 – 4 V (Vat) : 10 V (barrel)	• Used as a protective coating for metals which will come in contact with foodstuff. • Ideal coating for electrical and switch gear components to improve the solderability and corrosion resistance.
KEMSPEED IT	KEMSPEED PLUS KEMSPEED PLATE Sulphuric acid Temperature Immersion time	: 45 – 55 g/l. : 30 – 35 cc/l (depending upon colour) : Ambient. : As required.	• Cyanide free immersion tin coating for solder, copper and copper alloys. • Very effective in protecting print circuit boards and other electronic equipments during storage. • Fast plating rate.
STANNI SETTLER	STANNI SETTLER	: 5 – 10 ml/l	• Used to coagulate stannic tin in the bath for easy removal by filtration. • Excess consumptions and indicates more stannic in the bath.

SILVER PLATING PROCESS ARGOMAX

ARGOMAX STRIKE SILVER SALT	SILVER POTASSIUM CYANIDE POTASSIUM CYANIDE Temperature Cathode current density Time	: 4 g/l. : 100 g/l : Room : 1-2 A/sq.ft. : 30 sec – 1 min.	• Generally used as a strike silver before plating into brightsilver bath plating to avoid the contamination of other metallic ions.
ARGOASTRA BRIGHT SILVER	SILVER POTASSIUM CYANIDE POTASSIUM CYANIDE POTASSIUM CARBONATE ARGOASTRA CARRIER ADDITIVE ARGOASTRA BRIGHTENER Current density Temperature	:70 g/l : 145 g/l : 35 g/l : 10 – 15 ml/l : 10 – 40 ml/l : 1 – 2 A/dm^2 : 20 – 30 ºC	• Bright silver system based on fully organic addition agents to produce mirror bright silver deposits having a pleasing white colour and good antitarnishing properties. • Designed for plating silver jewellery articles, table ware, cutlery, etc. • Silver on silver applications.
KEMPAS AG - 300	KEMPAS AG – 300 Temperature Time	: 3 - 6 g/l : 40 - 45 ºC : 4 - 5 mins	• A solvent free emulsion anti tarnish for silver deposit. Does not contain halogenated hydrocarbon solvents

CHEMGUARD AG – 250	CHEMGUARD AG – 250 Temperature Time	For electronics : 35 – 65 m/l : 40 – 45 ºC : 0.5 – 4.0 mins.	For decorative : 5 – 15 m/l : Ambient. : 0.5 – 2.0 mins.	• Solvent free, chemically stable film. • Non hazardous. • Water soluble.

GOLD PLATING PROCESS

AUROSHINE BRIGHT GOLD	Gold potassium cyanide Auroshine Conducting salt Auroshine Brightner Temperature pH Density Cathode movement Anodes Current density Voltage	: 12 g/l : 65 g/l : 20 ml/l : Room to 60º C : 4.8 - 5.2 : 5 – 6 ºBe : Continuous : Platinised Titanium or Graphite : 0.5 - 1.0 A/dm2 : 1 - 4 volts
		• Used widely for gold plating of printed circuit boards, contact, connectors, jewellery, and electronic components. • Good wear resistance and throwing power.

PROCESS	COMPOSITION AND CONDITIONS	APPLICATIONS AND FEATURES
AUROSHINE SG (STRIKE GOLD)	Gold content : 1 – 3 g/l Auroshine SG Make-up : Full strength. Temperature : 50 - 55° C pH (electrometric) : 3.4 – 3.6 Agitation : Cathode rod movement Anodes : Platinised Titanium applications. Cathode current density : 0.8 – 1.2 A/dm^2 Plating time : 1 – 2 mins. Auroshine SG Replenisher : One ml for 1 gm Gold consumed	• The process is used as a Gold strike before main Gold plating. • Promotes adhesion on nickel andnickel alloys and on other base metals. • Deposit is golden yellow colour. • Deposit is 99.98% pure. Used for electronic and decorative
AUROSHINE – 2N	Gold content : 4 – 6 g/l AUROSHINE 2N MAKE-UP CONCENTRATE : Full strength. Temperature : Room pH (electrometric) : 3.2 – 3.6 Cathode Current Density : 0.8 – 1.2 A/dm^2 Agitation : Cathode rod movement Anode : Platinised Titanium or Graphite. Auroshine 2N Replenisher : One ml for 1 gm Gold consumed Rate of plating : One micron in 7.0 mins at 1A/dm^2	• Designed to produce non tarnish uniform bright Gold deposit. • Used for plating jewellery articles plated deposit is 23.0 carat having hardness around 200 – 240 HV.
AUROSHINE – 3N	Gold content : 4 – 6 g/l AUROSHINE 3N MAKE-UP CONCENTRATE : Full strength. Temperature : Room pH (electrometric) : 3.2 – 3.6 Density : 8 – 14 ^{O}Be Cathode Current Density : 0.8 – 1.2 A/dm^2 Agitation : Cathode rod movement Anode : Platinised Titanium or 316 ss Auroshine 3N Replenisher : One ml for 1 gm Gold consumed Rate of plating : One micron in 7.0 mins at 1A/dm^2	• Designed to produce uniform bright Gold deposit of 23.5 carat. • Used for plating all jewellery articles to deposit 1.0 – 2.0 micron, over which Gold flash is given for getting rich gold colour. • Produces hard Gold deposit having hardness around 160 – 200 HV.
AUROSHINE – CC	Gold content : 6 – 10 g/l AUROSHINE CC MAKE-UP CONCENTRATE : Full strength. Temperature : Room pH (electrometric) : 3.8 – 4.6 Density : 12 – 15 ^{O}Be Cathode Current Density : 1 – 5.0 A/dm^2 Anode : Platinised Titanium Plating rate : 2.5 micron in 1.5 mins at 1A/dm^2 Auroshine CC Replenisher : One ml for 1 gm Gold consumed	• Hard acid gold process using Cobalt as an alloying metal. • Produces bright deposit having good hardness. • Suitable for plating connectors printed wiring boards, contacts and switches. • Suitable for vat and barrel plating.
AUROMAX NUTRA	AUROMAX NUTRA : 50 g/l Gold content : 0.6 – 1 g/l Voltage : 6 – 8 V Temperature : 60 – 70 °C Plating time : 20 – 40 secs pH : 7 – 8 Density : 2 – 4 ^{O}Be Anodes : 316 SS Agitation : Article movement.	• A neutral gold process. • Designed to produce 22 – 24 carat coating. • Offers uniform distribution in thickness. • Ideal for decorative applications. • Single additive system easy to handle.
BRASS PLATING PROCESS		
TEKNOBRASS SALT	TEKNOBRASS SALT : 75 – 100 g/l AMMONIUM CHLORIDE : 3 g/l pH : 9.8 – 10.8 Temperature : 40 – 50°C	• Designed for use in both vat & barrel to produce a rich brass deposit

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
METAL STRIPPERS			
EMSTRIP MS	KEMSTRIP MS Temperature	: 150 g/l : Room – 70 ºC	• A cyanide based metal stripper which strips Nickel, Copper, Cadmium, Zinc and Silver from Steel without electric current.
KEMSTRIP NF	KEMSTRIP NF Conc. Sulphuric acid Temperature	: 120 g/l : 50 ml/l : 70 – 95 ºC	• An acidic stripping bath used to strip Nickel from copper and copper alloys.
CIRCASTRIP LT-236	CIRCASTRIP LT-236 Temperature	: Full strength. : Room	• A versatile stripper based on nitric acid for rapid stripping of tin and tin-lead alloya from copper clad PCB's • Minimum attack on copper. • Suitable for spray or dip applications.
KEMSTRIP T	KEMSTRIP T Temperature	: 120 – 180 g/l : 82 – 104 ºC	• An alkaline non-cyanide immersion stripper for tin and high tin alloys from steel.
KEMSTRIP EN 179	KEMSTRIP EN 179A KEMSTRIP EN 179B Sodium Hydroxide Temperature Time	: 500 ml/l : 60 g/l : 15 g/l : 85 – 91 ºC : As required.	• A non-cyanide alkaline stripper designed to strip high phosphorus electroless nickel deposits from steel by immersion.
KEMSTRIP AURO 178	KEMSTRIP AURO 178 Temperature Time	: Full strength. : 60 – 70 °C : Depends on stripping to be achieved.	• A ready to use liquid stripper for removing gold and gold alloys from Steel, Nickel, Copper and Copper alloy substrates. • Stripping operation is done by immersion of the parts. No electric current is required to be passed.
ON BRASS & COPPER			
KEMKOTE BK – 635	KEMKOTE BK – 635 Temperature Time	: 180 g/l : 100 ºC : 1 – 4 mins.	• An alkaline bath for producing jet black oxide coatings on copper and copper alloys.
KEMKOTE BK – 155	KEMKOTE BK – 155 Temperature Time	: 150 ml/l : Room. : 1 – 2 mins.	• The process produces wide range of attractive colours on copper and copper alloys.
KEMKOTE BA – 60	KEMKOTE BA – 60 Temperature Time	: 60 – 100 g/l : 60 – 70 ºC : 1 - 3 mins.	• An alkaline pretreatment bath for activating brass components prior immersion into Kemkote BK – 635 solution to produce jet black oxide coating on Brass.
FOR FERROUS PARTS AND IRON CASTING			
KEMBLACK DSR (ROOM TEMPERATURE)	KEMBLACK DSR Temperature	: 10% v/v : Room	• A room temperature immersion blackening process for iron and steel.
KEMKOTE BK - 304 (HIGH TEMPERATURE)	KEMKOTE BK - 304 Temperature Time	: 840 - 900 g/l : 138 - 142 ºC : 10 - 30 mins.	• Process for blackening iron and steel by simple immersion. • Uniform, shiny black coatings are produced which
TEKNOBLACK 20	TEKNOBLACK 20 A Temperature Time TEKNOBLACK 20 B (SEALING): DRYING	: 10 - 15% v/v : Room : 1 - 4 mins. v/v : 60 °C	• The process can be opertaed at room temperature. and is non caustic, fumeless and non-splattering. • Improved productivity. • No elaborate equipment, power or heating is required as in other metal finishing processes.
PLATING ON ALUMINIUM			
SURFOLIN AL – 26		**For Non-etching** / **For mild-etching**	• A non silicated, mildly alkaline soak cleaner used for either non-etch or mild-etch cleaning. • Ideal for the non-etch cleaning of aluminium prior to anodising, chromatin, bright dipping and electroplating.
	SURFOLIN AL–26	15 – 45 g/l / 45 – 60 g/l	
	Temperature	50 - 65 °C / 70 - 80 °C	
	Time	1 - 5 mins. / 1 - 5 mins.	

Process	Composition and Conditions		Applications and Features
SURFOLIN AL – 43	SURFOLIN AL-43 Temperature Time	: 30 - 60 g/l : 30 - 70 °C : 2 – 6 mins.	• It is also a excellent soak cleaner for zinc diecasting and other raective metals. • Surfolin AL 43 has a good detergency and rapidly removes white soil, light buffing compounds.
KEMPAS AL – 180	KEMPAS AL - 180 pH Time	: 2 – 4% v/v : 1.8 : 30 secs. – 6 mins.	• Produces slightly irridescent light to deep yellow Chromate coating on Aluminium and its alloys for higher corrosion resistance. • Ideal undercoat prior to powder coating to improve adhesion.
ALUFIX M	ALUFIX M Time Temperature	: Full strength. : 10 – 20 secs. : Room.	• A complete Zincate process for direct bright Nickel plating on Aluminium. • Also used for copper, silver, tin plating on Aluminium and
ALUFIX – MV	ALUFIX – MV Time Temperature	: Full strength. : 15 secs. – 2 mins. : 25 - 30 °C	• A modified much advanced Zincate process for activating the aluminium alloy by forming a thin adherent zinc coating by immersion used extensively on Aluminium wheels.
ALUFIX – EN	ALUFIX – EN Time Temperature	: 200 – 500 ml/l : 15 secs - 2 mins. : Room.	• A Zincate process for plating of Electroless Nickel on Aluminium. • Ensure good bonding between Electroless Nickel and base metal Aluminium.
KEMTEK NI 510	KEMTEK NI 510 A KEMTEK NI 510 C KEMTEK NI 510 B pH Temperature	: 150 ml/l : 70 ml/l : only for replenishment : 9.6 – 11.5 : 34 – 43 ºC	• Kemtek NI 510 is an electroless Nickel strike bath for processing aluminium prior to electroless Nickel or electrolytic Nickel plating. • For make up 510A and 510C are used and 510B and 510C for replenishment.
PLATING ON PLASTICS			
KEMPLATE 1452	Kemplate 1452 Temperature Time	: 30 – 50 g/l : 45 – 50 ºC : 1 – 5 mins.	• An alkaline soak cleaner designed to remove light grease and finger prints from the ABS plastic surface.
KEMPLATE AD – 1480	KEMPLATE AD – 1480 Temperature Time	: 60 - 90 g/l : Room. : 15 - 60 secs.	• An effective acid dip which neutralises residual alkali remaining from the cleaner and presents a clean surface for further processing.
TEKNOPLATE EH – 384	TEKNOPLATE EH – 384 Conc. Sulphuric acid (Technical) Mistonil – L Temperature Time	: 425 g/l : 225 ml/l : 4 – 8 ml/l : 65 – 70 ºC : 10 – 20 mins.	• The strongly acid conditioner used to alter the plastic surface to obtain true adhesion of plate to plastic without prior mechanical roughening.
KEMPLATE ACTIVATOR 1442	KEMPLATE ACTIVATOR 1442 HCl (AR GRADE) Deionised water Temperature Time	: 1 Part. : 1 Part. : 6 Parts. : Room : 2 – 5 mins.	• An advanced Tin Palladium catalyst solution which catalyses the ABS plastic surface to influence the metal deposition from subsequent electroless nickel or copper bath.
KEMPLATE PA – 1492	KEMPLATE PA – 1492 Kemplate PA – 1492 Additive Temperature Time Agitation	: 200 cc/l : 1 – 3 cc/l (optional) : 18 – 45 ºC : 2– 10 mins. : Mechanical rod or. slight air agitation	• To improve initial deposition of subsequent electroless Copper or Nickel deposition.
KEMPLATE NI 504	KEMPLATE NI 504 A KEMPLATE NI 504 B Temperature pH Time	: 55 ml/l : 50 ml/l : 30 – 38 ºC : 8.8 – 9.0 : 6 – 10 mins.	• A highly stable room temperature electroless Nickel bath to deposit uniform conductive Nickel coating on ABS plastics.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
CHEMICALS FOR PRINTED CIRCUIT BOARDS			
PCB PRE-TREATMENT CHEMICALS			
KEMPLATE PC-1455	KEMPLATE PC – 1455 Temperature Time	: 200 – 300 ml/l. : 45 – 50 ºC : 1 – 2 mins.	• An ideal acidic liquid cleaner designed to remove the photo resist binder residues from the copper surfaces of printed circuit boards.
KEMPLATE AD-1481	KEMPLATE AD – 1481 Deionised or distilled water Sulphuric acid (AR grade) Temperature Time	: 120 – 180 g/l : To make 1 ltr. : 10 – 20 ml/l : 24 – 30 ºC : 2 – 5 mins.	• Provides clean, uniformly etched copper surface without affecting dielectric using an ammonium per sulphate type material.
KEMPLATE E – 2743	KEMPLATE E – 2743 Conc. Sulphuric acid Hydrogen peroxide Temperature Water	: 5% by volume. : 10 – 20% by volume. : 2 – 4% by volume : 50 ºC : Balance.	• Micro etch solution based on hydrogen peroxide and sulphuricacid. Has a controlled etch rate and good stability to avoid decomposition of hydrogen peroxide. • Copper can be recovered from the used solution.
KEMPLATE PC-1236	KEMPLATE PC – 1236 HCl (AR grade) Temperature Time	: 180 g/l : 2.5% by volume. : Room. : 1 – 3 mins.	• A powdered product used with Hydrochloric acid as a pre-dip prior to Kemplate Activator 1444 working solution.
KEMPLATE ACTIVATOR 1444	Deionised or distilled water Kemplate PC 1236 HCl (AR grade) Kemplate Activator 1444 Kemplate Activator 1443 Time Temperature	: 66% by volume : 15% by weight. : 1.5% by volume : 3.8% by volume : 1% by volume : 5 – 6 mins. : 30 – 32 ºC	• Concentrated Activator designed for high chloride low acid formulation specially suited to multilayer applications. • Due to its low acidity, attack is kept minimum on inner layer oxide coatings and has high tolerance for copper.
KEMPLATE PA-1491	KEMPLATE PA – 1491 Deionised or distilled water Time Temperature	: 200 ml/l. : 800 ml/l : 2 – 10 mins. : Room	• It improves initial deposition of electroless copper. • Ensures uniform strong bonding of electroless copper to copper laminate.
ELECTROPHORETIC COATINGS			
TEKNOCLEAR EPA 2020	TEKNOCLEAR EPA 2020 Teknoclear Auro Solid content pH Circulation Anodes Curing temperature Curing time Voltage	: 330 ml/l : 10 ml/l : 13% : 4.4 - 5.2 : Continuous. : 316 SS : 150 - 180 ºC : 20 mins : 30 – 50 V	• Designed to produce clear as well as gold coloured coatings. • Suitable for Brass and jewellery items. • Cathodic deposition type. • Superior mar resistance.
DUROCLAD 3700	Solid content wt/wt DUROCLAD H401 DUROCLAD HPL Temperature Conductivity pH	: 6 - 12 % : 2 - 4 % : 0.3 - 0.6 % : 23 - 28 ºC : 300 - 600 υS : 4.2 - 4.8	• Superior chemical resistance • Excellent UV stability and good emulsion stability. • Excellent film clarity. • Low cream coat results. • Flat structure free deposit at wide range of thickness.
TEKNOCLEAR DYES	Teknoclear dye	: 10 - 20 ml/l	• In tank dyes for electrophoretic coatings. • Various UV stable colours available.
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TEKNOCLEAR DYES	Teknoclear dye	: 10 - 20 ml/l	• In tank dyes for electrophoretic coatings. • Various UV stable colours available.
TEKNOCLEAR 3020	TEKNOCLEAR 3020 Conductivity pH Curing temperature Voltage	: 330 ml/l : 90 - 1100 u : 4.2 - 5.0 : 150 ºC for 20 mins : 130 ºC for 30 mins : 30 – 50 V	• It has properties like Hardness, Gloss, solvent and chemical resistance, abrasion resistance, etc. comparable to PU lacquer. • Like uniform film thickness covering a edges and curve mixing of dye, water and sweat resistance, UV resistance comparable to acrylic. • Fully cured film gives excellent UV and corrosion resistance and very good chemical wear and tera resistance.
DUROCLAD STRIPPER 8155	DUROCLAD STRIPPER 8155 Temperature	: 7 - 10% by volume : 60 - 70 ºC	• Water thinnable stripper. • Does not contain halogenated solvent. • Very slow evaporation rate. • Less fire and health hazards.

PHOSPHATE COATINGS

KEMPICKEL 711	Concentration Temperature Time	: 25% (v/v) : Room to 80 °C : 30 – 60 secs.	• Quick derust and degrease the component before phosphaing • Easy to use.
KEMFIX ISP 201	Concentration Temperature Time Coating weight	: 1 – 3% (w/v) : 65 – 70 °C : 1 – 3 mins. : 50 – 150 mg/ft^2 (Depends on condition)	• Uniform spray iron phosphate as well as cleaner. I.e. Three in one process. • Low foaming . Easy to operate. • Good adhesion to paint.
KEMFIX ZN 703	Concentration Temperature Time Coating weight	: 3 – 5% (v/v) : 50 – 70 °C : 2 – 5 mins. : 150 – 200 mg/ft^2 (with Accelator 'A') : 400 – 600 mg/ft^2 (without Accelator 'A')	• Compact crystal growth. • Easy to operate. • Better bonding of paints.
KEMFIX ZN 705	Concentration Temperature Time Coating weight	: 3 – 5% (v/v) : 55 – 90 °C : 5 – 10 mins. : 400 – 750 mg/ft^2 (with Inducer A) : 750 – 2000 mg/ft^2 (without Inducer A)	• Heavy adherent coating of Zinc phosphate. • Non conducting and heavy corrosion resistance. • Used as pre-paint application.
KEMFIX ZNR 706	Concentration Temperature Time Coating weight	: 2.5 – 4.0% (v/v) : Room : 5 mins. : 150 – 300 mg/ft^2	• Room temp. low weight zinc phosphate. • Used for energy conserving light coatings. • Precoat before heavy phosphating.
KEMFIX ZN 702	Concentration Temperature Time Coating weight	: 2.5 – 3.5% (v/v) : 55 – 90 °C : 5 – 10 mins. : 750 – 2000 mg/ft^2 (without Inducer A) : 400 – 750 mg/ft^2 (with Inducer A)	• Heavy duty Zinc Phosphate for better life of components. • Nickel modified hence highest corrosion resistance.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
KEMFIX ZN 712 WD	Concentration Temperature Time Coating weight	: 3 – 4% (v/v) : 65 –75 °C : 5 mins. : 500 – 700 mg/ft^2	• Useful for wire phosphating. • Better adhesion. • Quick crystal growth.
KEMFIX MN 741	Concentration Temperature Time Coating weight	: 5 – 7% (v/v) : 90 – 100 °C : 10 – 30 mins. : 750 – 4000 mg/ft^2	• Outstanding manganese phosphate gives smooth and shining black crystal. • Higher corrosion resistance. • Process is very smooth without any trouble.
KEMFIX BLACK	Concentration Hydrochloric acid Operating temperature Immersion time	: 7.5 ml/l. : 130 ml/l. : Ambient. : 1 – 4 mins.	• Kemfix Black is a unique formulation for jet black decorative coating on phosphated article. • Kemfix Black process is very easy and it works at room temperature, so no extra cost. • Kemfix Black gives a uniform black coating with shining crystalline particles like Manganese phosphating.
GALFIX 2001	Concentration Temperature Time Coating weight	: 4% (v/v) : 50 – 55 °C : 1 – 5 mins. : 100 – 150 mg/ft^2	• Good adhesion of Zinc phosphate on galvanised articles. • Better paint bonding. • Very low coating, good uniformity.
KEMSEAL 710	Concentration Temperature Time	: 0.06% (v/v) : 50 – 70 °C : 1 – 2 mins.	• Better seal to phosphated articles. • Higher corrosion resistance. • Chromated seal rinse.
INDUCER A	Concentration weight.	: Depends on coating phosphate coating. (usually 0.5 – 1.0 cc/l)	• Quick accelerate the phosphate bath and smooth the

ANODISING

SURFOLIN AL – 26		**Non-etching**	**mild-etching**	• A non-silicated, mildly alkaline soak cleaner used for either non-etch or mild etch cleaning. • Ideal for the non-etch cleaning of aluminium prior to anodising, chromating bright dipping and electroplating.
	SURFOLIN AL – 26	:15 – 45 g/l	:45 – 60 g/l	
	Temperature	: 50 – 65 ºC	:70 – 80 ºC	
	Time	:1 – 5 mins	:1 – 5 mins	
SURFOLIN AL – 42	SURFOLIN AL – 42 : 45 – 60 g/l. Temperature Time		: 60 – 70ºC : 5 – 120 secs.	• An alkaline etching product suitable for all aluminium alloys producing an ultra fine etch on aluminium brightening the surface. • Serves as a low cost substitute for chemical polishing.
SURFOLIN E 204	SURFOLIN E 204 Temperature Time		: 45 – 60 g/l. : 60 – 70ºC : 5 – 120 secs.	• An unique alkaline product which produces an ultra fine etch on aluminium to a satin bright finish. • Serves as a low cost substitute for chemical polishing.
SURFOLIN AL – 150	SURFOLIN AL – 150 Temperature Time pH		: 2 – 6 % vol. : 25 – 55 ºC : 30 secs – 10 mins : 3.5 – 5.0	• An acid concentrate specially designed for immersion or spray cleaning of Aluminium or its alloys. • Avoids the stains as the result of the alkaline cleaning drag-out. • Improves the paint adherence and increases the corrosion resistance.
ALUMAX EC SALT 205	ALUMAX EC SALT 205 ALUMAX EC Stabilizer Temperature Time		: 20 - 25 g/l : 20 - 25 g/l : 20 - 30 ºC : 0.5 - 15 (depending upon desired shade of colour)	• Designed for the electrolytic dyeing of oxidized aluminium particles • Gives perfect and even dispersion in-depth to dye the article.
ALUMAX SMOOTHENING ADDITIVE	ALUMAX SMOOTHENING ADDITIVE Temperature Time		: 3 – 12 ml/l of solution or 4 – 16 lit./100kg. of Caustic soda : 50 – 65 ºC : 30 secs – 10 mins.	• A liquid alkaline additive to aluminium etchant, used as pickling admixture to give uniform surface of aluminium and its alloys. • Prevents formation of scales on tank surfaces and heating elements.

PROCESS	COMPOSITION AND CONDITIONS		APPLICATIONS AND FEATURES
ALUMAX ANTI PRECIPITATION AGENT	ALUMAX ANTIPRECIPITATION AGENT pH	: Initial dosage of : 1 g/l. : Approx. 6 – 7 Hydroxide.	• Used as a precipitation preventing agent in alkaline baths and degreasers. • Prevents the formation of petrous deposits by preventing the hydrolysis of Sodium Aluminate to Aluminium
ALUMAX ETCH FUME SUPPRESSANT	ALUMAX ETCH FUME SUPPRESSANT Etching bath. pH	: 0.5 – 1.0 ml/l of : Approx. 3 – 4	• Used to suppress fuming in alkaline long-term pickling baths. • Provides good foam blanket.
ALUMAX FUMONIL	ALUMAX FUMONIL pH	: 0.3 – 0.6 ml/l. : Approx. 5 – 6	• Used to suppress fuming in anodizing baths containing sulphuric acid. • Provides good foam blanket.
ALUMAX ELECTRO COLOUR EC 400	ALUMAX ELECTRO COLOUR EC 400 Sulphuric acid ALUMAX EC STABILIZER Temperature Time Voltage	: 75 – 150 ml/l. : 18 – 35 ml/l. : 20 – 50 ml/l. : 20 – 30 °C : 0.5 – 15 mins (Depending on the desired colour shade) : 15 – 20 V AC	• Designed for the electrolytic dyeing of oxidized Aluminium articles. • Shades from champagne to black can be obtained depending on dyeing time and voltage applied. • Gives perfect and even dispersion in-depth to dye the article.
ALUMAX EC STABILIZER	ALUMAX EC STABILIZER	: 20 – 50 ml/l.	• An acidic concentrate to supresses oxidation of tin-II to tin-IV in Electrocolouring baths.
ALUMAX SEAL H 7590	ALUMAX SEAL H 7590 Temperature pH Sealing time	: 1.0 – 1.5 % v/v. : 70 – 90 °C : 5.5 – 6.0 : 5 – 20 mins.	• A quality sealing process designed to close the anodic coating of Aluminium anodized at mid temperature. • Reduced the smut & low energy consumption.
ALUMAX SEAL C 2535 SUPER	ALUMAX SEAL C 2535 SUPER Temperature pH Sealing time	: 3.0 – 4.0 % v/v. : 20 – 30 °C : 5.5 – 6.0 : 1 – 2 mins./ micron	• A long life sealing bath to seal the anodic coating on Aluminium anodized at low temperature. • Does not produce smut or yellow colours. • Has special ageing effect.
ALUMAX COLD SEALING SALT SUPER	ALUMAX COLD SEALING SALT SUPER Temperature pH	: 2 - 3.4 g/l. : 20 – 30 °C : 5.5 – 6.0	• A long life sealing composition to seal the anodic coating on Aluminium anodized at low temperature. • Does not produce smut or yellow colours. • Has special ageing effect.
ALFOSCROM H	ALFOSCROM H Temperature Time	: 20 - 30 ml/l : 25 – 60 °C : 30 - 60 secs	• Conversion coating with ALFOSCROM process produces a chromium phosphate coating on the aluminium surfaces rise up the corrosion resistance and also improving the paint adherence on the aluminium surface.
ALCROM	ALCROM A (make up) ALCROM B (maintenance) Temperature Time	: 15 ml/l. : to adjust chromic acid points : 25 - 60°C : 3 - 10 mins	• ALCROM is an acidic liquid product used for the yellow chromating process over Aluminium and it's alloys, producing wide range of iridescent finishes on the surface. • This chromate conversion coating can be used as a pre-treatment for Aluminium paintting and also as a final finishing for resistant corrosion and decorative processes.
ALUMAX ALPHOS CRL	ALCUMAX ALPHOS CRL water with stiring pH Temperature Time	: 10 - 20 ml/l. in DI. : 2.5 - 3.5 : 30 - 40 °C : 3 mins	• It provides a corrosion resistance as well as very good adhesion properties for subsequent painting.

PROCESS	COMPOSITION AND CONDITIONS	APPLICATIONS AND FEATURES
ALUMAX ANO-ES-24	Make-up of the anodizing bath : 15 - 20 ml/l. to the anodizing solution	• ALUMAX ANO-ES-24 will produce uniform film thickness nearly and hence require lesser time to acheive desired thickness. • ALUMAX ANO-ES-24 is energy saving additive to conventional sulphuric acid anodizing bath. • ALUMAX ANO-ES-24 contains active ingredients and substances which are most effective in reducing dissolution aluminium oxide film during anodizing process.
ALUMAX GOLD COLOUR 05	ALUMAX GOLD COLOUR 05 : 10 - 30 g/l pH : 3.8 - 5.0 Bath temperature : 50 - 60 °C Voltage : 12 - 15 V (AC) Time of exposure : 30 secs - 5 mins	• ALUMAX ANO-ES-24 will produce uniform film thickness nearly and hence require lesser time to acheive desired thickness. • ALUMAX ANO-ES-24 is energy saving additive to conventional sulphuric acid anodizing bath.
ARODAL DYES	Concentration depends on the shade required.	• For light and weather resistant colour finishes. We offer Sanodal dyed suitable for aluminium building components.
ALUMAX DYES	Concentration depends on the shade required.	• Multipurpose Aluminium dyes for Jewellery, optical instruments, household articles, machine components, multicolour nameplates and interior building fitments.