

Ink Driers and Additives



PATCHAM

»»» A SUSTAINABLE APPROACH TO MODERN COATING TECHNOLOGY

A Sustainable Approach to Technology

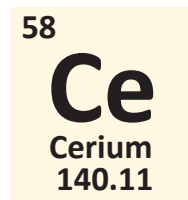
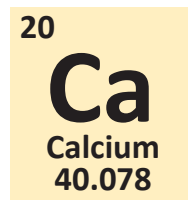
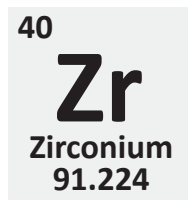
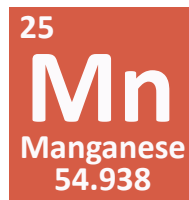
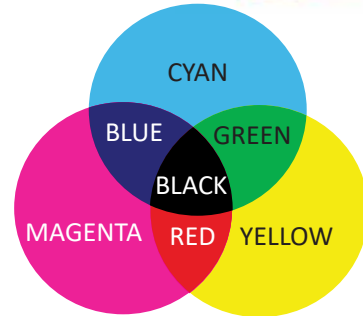
Patcham FZC is a dominant manufacturer of specialty additives headquartered in the United Arab Emirates. Since its inception, Patcham has steadily grown into a leading supplier of metal carboxylates and specialty additives for Paint & Coatings, Inks, PVC, Composites and Polyurethane. We also manufacture a range of tin based and tin free catalysts for various end use industries.

The company's Pat-Add range of coating additives includes driers, wetting & dispersing agents, defoamers, slip & leveling agents, rheology modifiers. All our products are APEO free and many are produced from green raw materials. Several are designed to enable our customers to make products that are low VOC or VOC free.

Patcham has built a strong manufacturing and R&D infrastructure that enables rapid transition from concept to products. The company has strategically located technical service laboratories, offices and representatives around the world to provide the most efficient customer service. In addition, a well-developed robust supply chain network enables it to deliver its products and services to customers around the globe with minimal lead-time.



Ink Driers



Driers for Alkyd-based Printing Ink Systems

Inks based on alkyd or modified alkyd resins are important in today's market for their high quality glossy end products.

These air drying systems require catalysts to accelerate chemical reactions of the drying process. These catalysts are called Driers.



Types of Driers

Primary Driers : (Also termed as Active Driers; Drying Initiators; Surface or Top Driers)

Act as primary oxidation catalysts and work on the air/wet film interface.

Cobalt	Most powerful at ambient temperature.	Can lead to discoloration due to its purple color.
Manganese	Weaker than cobalt but its efficacy can be enhanced with chelation agents.	Can discolor white inks.
Cerium	Very weak as an initiator at ambient temperatures.	Colorless Very good for clear overprint varnishes.

Secondary Driers : (Also termed as Through Driers)

Used in conjunction with primary driers to ensure a balanced drying process of both surface and body of the ink film.

However, because inks are usually applied as very thin films, through driers are rarely required.

Zirconium	Powerful through drier. Most widely used; Minimizes tack-free time.	
Calcium	Assists in the through drying process. Improves the action of primary driers.	May impart some hydrophilicity to the ink.

Patcom : (Combination Driers)

Combinations of Cobalt and manganese can provide excellent dry-times whilst minimizing the negative consequences of the individual driers.

Cobalt Replacement :

Concerns regarding the regulatory status of cobalt have led to interest in cobalt replacement driers.

Patcom 2516 and **Patcom 2507 BD** are special metal complex driers that can be used in place of cobalt driers.

Non-Metallic Drying Enhancer :

Patox 41 when used in conjunction with traditional primary metallic driers:

Accelerates drying times

Reduces the tendency for these primary metallic driers to deactivate

Helps to prevent loss of dry typically associated with pigmented oleo-resinous, high-solids, water-reducible, and urethane coatings

Patox 41 is typically used at levels ranging from 0.04% to 0.40% based on resin solids.

Anti-skinning Agent :

Anti-skinning agents endeavor to inhibit drying in the can, thus preventing skin formation, without hindering drying on the substrate. The use of anti-skinning agents usually causes a slight increase in the drying time.

Patox 1 is MEKO (methyl ethyl ketoxime)

Patcham Ink Driers

COMMODITY	APPROPRIATE
Economical	No VOC emissions in pressroom Low fountain solution leachability Minor effect on ink rheology
Primary Driers / Drying initiators	Green Driers
Patcham Cobalt Octoate 12% Patcham Manganese Octoate 12% Patcham Cerium Octoate 12% Patcom 79 (6% cobalt 6% Manganese) Patcom 2516 (Cobalt replacement Drier)	Patcham Cobalt Neodecanoate 10% BD Patcham Manganese Neodecanoate 8% BD Patox Manganese 6% TF Patcham Calcium 10% BD Patcham Calcium Neodecanoate 5% BD Patcham Zirconium Neodecanoate 18% BD Patcom 83 (4% Cobalt 4% Manganese) Patcom 2507 BD (Cobalt replacement Drier)
Secondary Driers	Drying enhancer
Patcham Calcium 10% Patcham Zirconium 24%	Patcom 41

Drier Dosage Requirement :

$$\text{Weight of drier required} = \frac{\text{Weight of resin solids} \times \% \text{ Metal required}}{\% \text{ Metal in drier}}$$



Additives for Waterborne Inks

Additive	Main application characteristics & composition	Active content (%)	Solvents
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Wetting and Dispersing Agents

Pat-Add DA 108	Hydrophobic co-polymer dispersant for improving water resistance. For slurries containing basic fillers and pigments.	25%	Water
Pat-Add DA 202	APEO-free non-ionic pigment wetting agent. For all waterborne applications.	72%	Water
Pat-Add DA 450	Branched polyacrylic polyester blocked copolymer wetting and dispersing additive. For glycol free aqueous pigment dispersions.	40%	Water
Pat-Add DA 501	Wetting and dispersing agent for WB organic RMPC and RFPC. For universal colorants used in conjunction with Pat-Add DA 801 or Pat-Add DA 861.	80%	Water
Pat-Add DA 603	Polymeric wetting and dispersing agent for all pigment dispersions. Used in a wide range of applications, architectural, textile and industrial paints.	54%	Water

Multi-functional Surfactants

Pat-Add SU 4	A series of nonionic surface active agents, provide simultaneous wetting and defoaming in inks, paints and adhesives.		
	Available in various concentrations with below solvents: 1. Ethylene glycol 4. 2-Methoxymethylethoxypropanol 2. 2-Propanol 5. 2-Ethylhexanol 3. Propylene glycol (Ref: Product data sheet)		
Pat-Add SU 420	A polymeric wetting and dispersing agent with foam destabilizing characteristics for waterborne inks, paints and adhesives.	99%	
Pat-Add SU 440	Nonionic surface active agent, for excellent wetting and dispersing properties in aqueous systems, with minimum foam.	99%	

Mineral Oil Defoamers

Pat-Add AF 21	Mineral oil defoamer with hydrophobes and polysiloxane for Universal Colorants and High PVC waterborne systems.	100%	
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Silicone Defoamers

Pat-Add AF 34	Polyether modified PDMS defoamer for waterborne systems, Architectural, Industrial, Inks and Auto OEM.	100%	
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Polymer Defoamers

Pat-Add AF 43	Polymeric defoamer for waterborne Architectural, Wood and Industrial Formulations. Mineral Oil and PDMS free.	100%	
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Rheology Modifiers

Pat-Add Rheol 99	HEUR based associative thickener (liquid) suitable for wide range of emulsion paints, pigment and extender slurries and colorants with good flow and sag resistance properties.	35%	Propylene glycol
Pat-Add Rheol 100	VOC free version of Pat-Add Rheol 99.	35%	Proprietary

Leveling & Slip Additives

Pat-Add LE 1019	Leveling with slip. Polyether modified polysiloxane.	100%	
Pat-Add LE 1030	Leveling and substrate wetting. Polyether modified polysiloxane.	15%	Butyl cellosolve
Pat-Add LE 1433	Fluoro modified polyether polyester flow and leveling agent for industrial & wood coatings. Strong surface tension reducer for wetting and de-aeration.	55%	DPM/ Water

Additives for Solvent-borne Inks

Additive	Main application characteristics & composition	Active content (%)	Solvents
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Wetting and Dispersing Agents

Pat-Add DA 707	Amphoteric polyester dispersant for inorganic pigments and fillers. Recommended for alkyd and alkyd modified systems.	72%	White spirit
Pat-Add DA 932	HMV Technology polymeric wetting and dispersing agent for Industrial paints and solvent-borne pigment dispersions.	47%	Xylene/MPA
Pat-Add DA 948	HMV Technology wetting and dispersing additive for solventfree systems. Recommended for co-grinding Epoxy systems.	100%	
Pat-Add DA 1666	Polyamide-polyester backbone and electroneutral functionality for wide compatibility with Industrial solvent-borne paints. Also provides self assembly structure for anti-settling properties.	55%	Xylene/Isobutanol/Solvesso 100
Pat-Add DA 1808	Hydroxy functional wetting and dispersing additive for polar pigments in alkyd Industrial coatings.	100%	

Polymer / Silicone Defoamers

Pat-Add AF 62	Silicone and fluoro free polymeric defoamer in organic solvent. Recommended for Industrial Coatings and Inks.	35%	White spirit /Butyl glycol
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Leveling & Slip Additives

Pat-Add LE 1019	Polyether modified siloxane surface modifier for solvent-borne, solventfree and waterborne systems. Improves substrate wetting, flow and leveling.	99-100%	
Pat-Add LE 1477	Oil and silicone free modified fluoro polyacrylate leveling and slip additive for solvent-borne systems. Short-chained structure designed to meet environment regulations for fluoro carbons. Recommended for Wood and Industrial Coatings.	45%	Butyl acetate
Pat-Add SL 1120	Polyether modified polysiloxane for excellent slip and mar resistance. Highly recommended for clear coats in Wood and Industrial coatings.	15%	Butyl acetate

Flow and Leveling Additives

Pat-Add FL 7	Polyacrylate based flow and leveling additive with modified side chains for optimum compatibility. Recommended for all solvent-borne systems.	50%	Butyl acetate
Pat-Add FL 9	Polyacrylate based flow and leveling additive with slight defoaming activity. Recommended for Coil, Industrial, Protective and Automotive Coatings.	45%	Butyl acetate



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