



Driers, Accelerators & Catalysts for Coatings, Inks, Composite & Urethane Industries



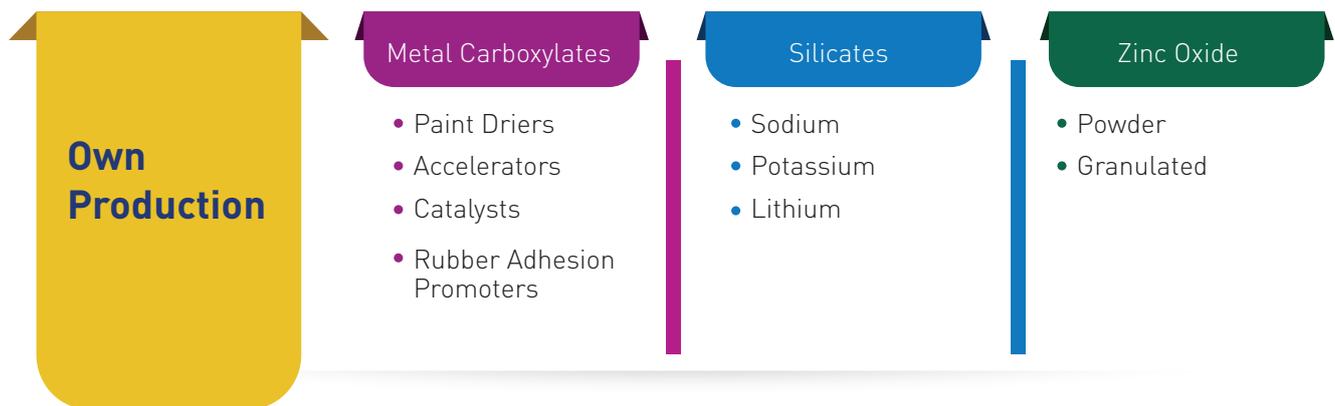
www.egekimya.com

ABOUT US

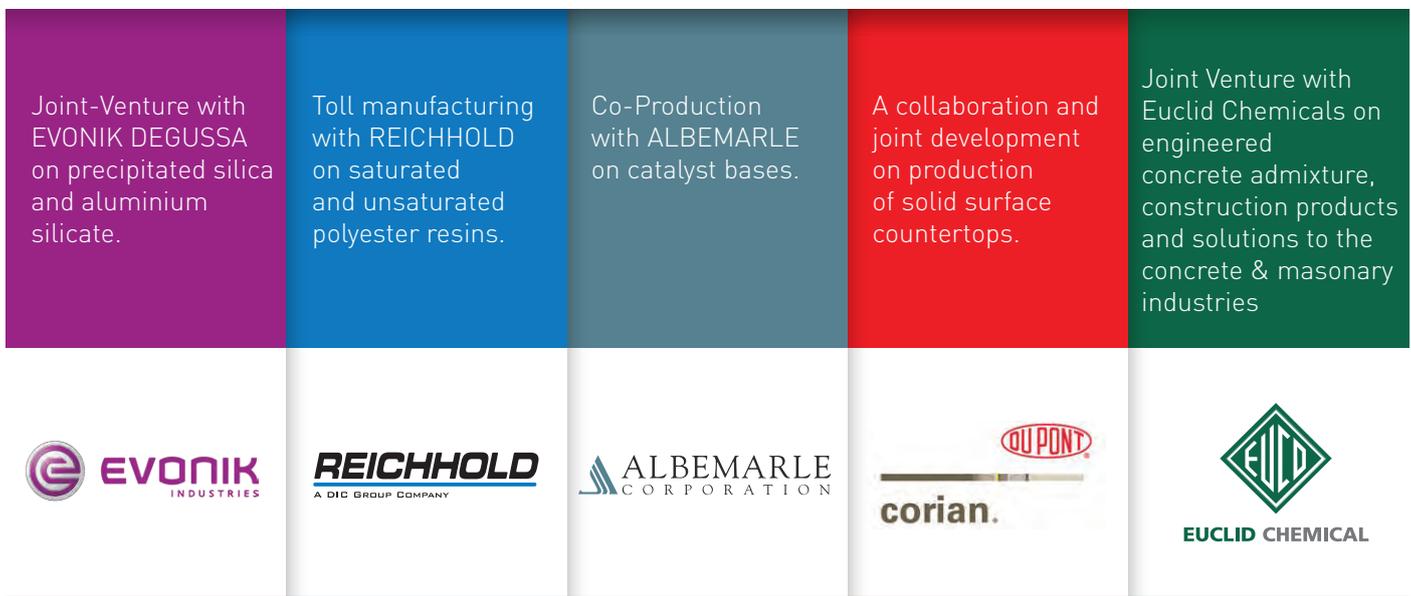


With its high annual growth, Turkey and its surrounding geography are attracting an increasing number of multinational companies every year. As one of the most established Turkish chemical companies, EGE KIMYA is your ideal partner to be present in this greater market with a ready-made industrial base.

- Founded in 1955, EGE KIMYA is one of the precursors of the Turkish Chemical Industry
- A family business involved in the production of intermediate chemicals for a variety of applications
- Headquartered in Istanbul-Turkey
- Adapazari plant, 130km east of Istanbul, is comparable to a small scale industrial zone with 120K sq meters of land, it serves various sectors with its production, design and research capabilities.
- EGE KIMYA received its ISO 9001:2000 in 1997, ISO 14000 certification in 2006 and is a signatory member of the European Chemical Industry Council (CEFIC) Responsible Care Program.
- EGE KIMYA is the market leader in more than 10 developing sectors with a technical team of researchers with academic degrees including Ph.D. managed by senior executives
- Main supplier to global corporations that are market leaders in their fields, with long term agreements
- With the services and technical support it offers, EGE KIMYA is one of the first choice of global corporations in the region.
- Current headcount: 381



International Collaborations of EGE KIMYA





**REACH-Compliant
Products**

**Globally
Approved Quality**

**Continuous R&D
and Customer Service**

**Exports around
60 Countries**

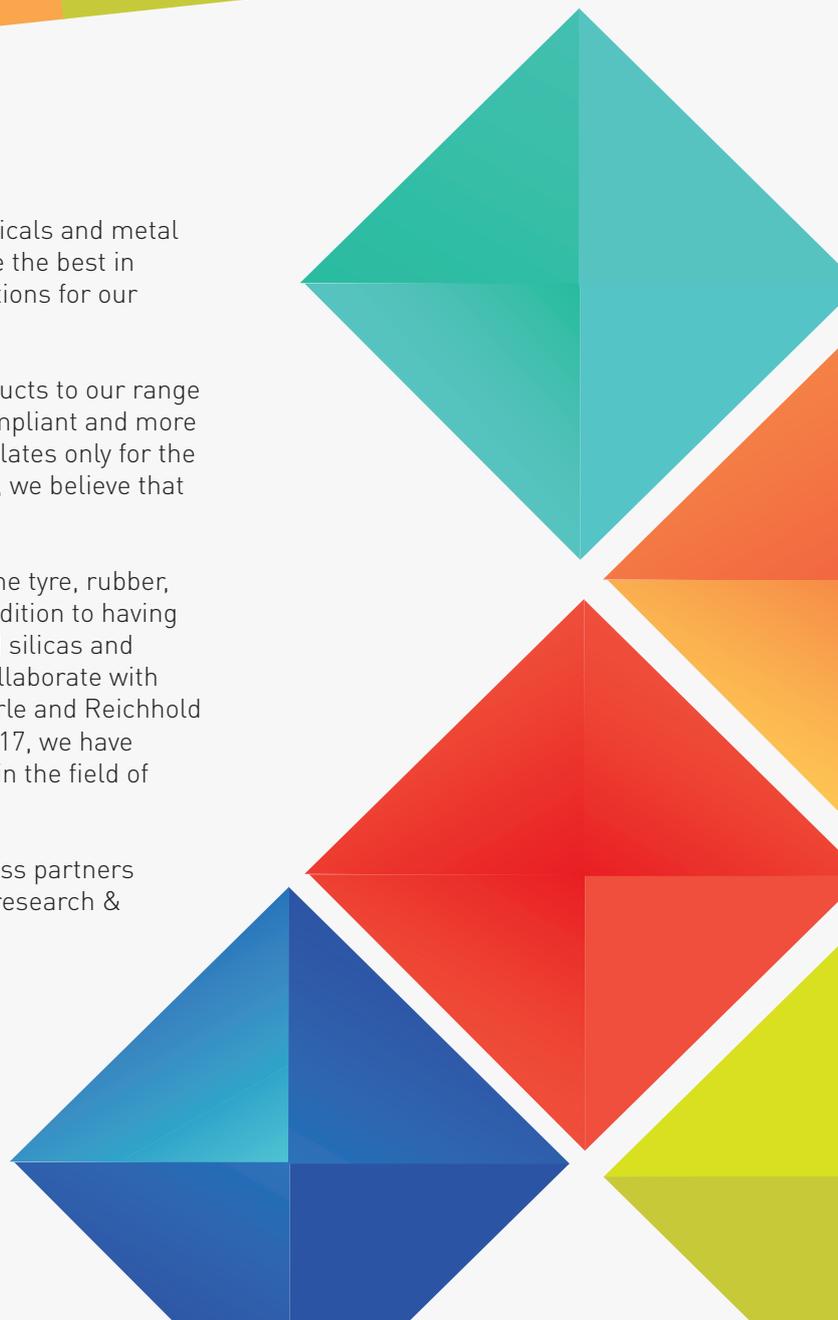
EGE KIMYA has been producing intermediate chemicals and metal carboxylates since 1955 and we have always aimed to be the best in the sectors where we are active with custom-made solutions for our customers worldwide.

In recent years, we have added patented novel products to our range to respond to the ever increasing demand for REACH compliant and more ecological products. As a manufacturer of metal carboxylates only for the coatings, composite, polyurethane and lubricant sectors, we believe that we can focus on this specialty in much more detail.

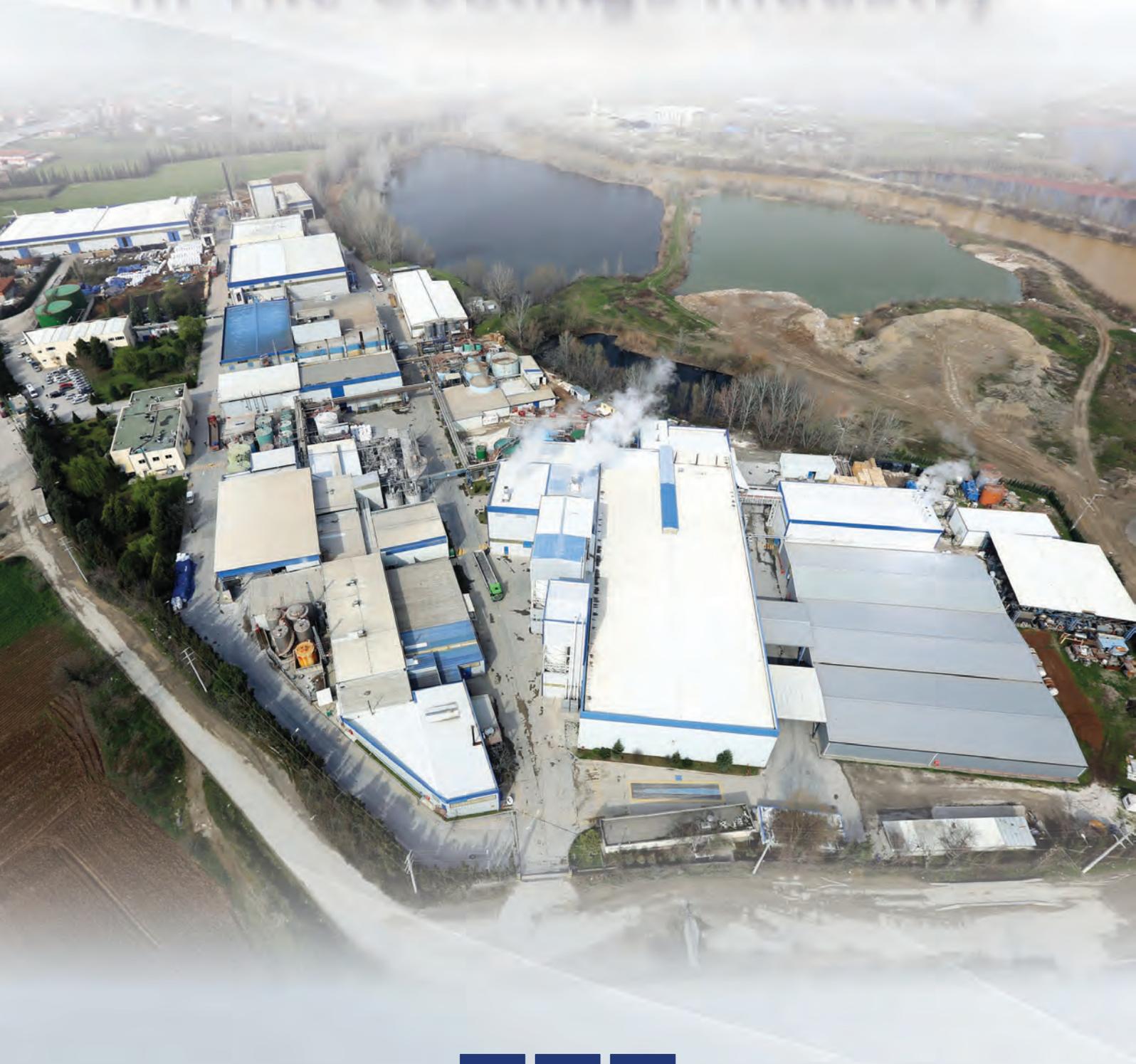
EGE KIMYA manufactures a range of products for the tyre, rubber, ceramics, welding, detergent & composite sectors. In addition to having a Joint Venture with the Evonik Group where precipitated silicas and aluminium silicate are manufactured; we also closely collaborate with other multinational companies such as DuPont, Albemarle and Reichhold in various chemical products manufacturing fields. In 2017, we have established a new joint venture with EUCLID Chemicals in the field of construction chemicals manufacturing.

EGE KIMYA is a promising companion for its business partners and customers with its reputable history and innovative research & development activities.

Metin Mansur
Managing Director
EGE KIMYA

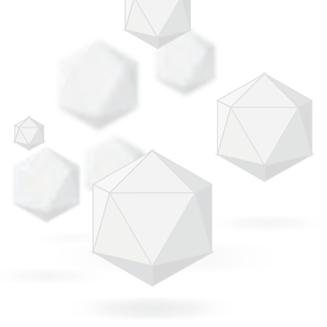


Your Trusted Partner in The Coatings Industry



EGE
KİMYA

DRIERS



EGEDry® Polymeric Cobalt Series

EGE KIMYA's next generation cobalt carboxylates offer a solution to paint manufacturer's labelling issue, maintaining all the benefits that cobalt brings on dried coatings films such as hardness, endurance.

EGE KIMYA's innovative solution to current "cobalt octoate" problem in oxidatively air-drying paint sector is **EGEDry® Prime**, an urethanized cobalt carboxylate polymer diligently designed and produced as in hexylene glycol with 4% cobalt concentration. As the product carries cobalt as a primary drier. It is not literally cobalt-free, nevertheless, it offers **label-free** solution as polymers are out of REACH classification. Additionally, the formulating a cobalt carboxylate in the polymeric form resulted in a low toxic product with the exact performance level as of cobalt octoate. EGE KIMYA provides all the supporting information proving that EGEDry® Prime has low toxicity by numerous toxicological reports from independent laboratories. Thus; this product is a drop-in alternative for those who seek to replace cobalt octoate which is soon to be reclassified as crm 1b (suspected to cause cancer). EGEDry® Prime is now fully commercialized and approved by various multinational companies.

EGE KIMYA has extended and continued its R&D activities to address the issues associated with usage of volatile organic compounds (VOCs) in solventborne air-drying paint industry. These issues led the technical team to reformulate EGEDry® Prime in a low VOC solvent. This is, what is now being marketed as **EGEDry® Prime LV**, an urethanized cobalt polymer with 5% cobalt concentration in ethyl lactate. This product offers no performance difference with respect to EGEDry® Prime except higher cobalt metal concentration with rather environmentally greener solvent and better stability in some circumstances. The following series of products offers alternatives to cobalt octoate and can be used in all type of oxidatively air-drying, solvent and water based oil-modified coatings

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® Prime	Cobalt, 4% Urethane Polymer	Hexylene Glycol
EGEDry® Prime WB	Cobalt, 3% Urethane Polymer	Hexylene Glycol
EGEDry® Prime LV	Cobalt, 5% Urethane Polymer	Ethyl Lactate

Key Features



Innovative



**Environmentally
Friendly**



No Recipe Change



**Globally
Approved**

DRIERS



EGEDry® Cobalt (Co)

EGEDry® CobaltOct is the strong oxidant and most active drier available. Cobalt improves the surface drying and used in conjunction with auxiliary driers in oxidatively air-drying coatings. It is used in combination with lead or zirconium (together with calcium) depending on environmentally friendly formulations, and it improves the surface drying as well as through dry. Similarly performing **EGEDry® CobaltNeo** offers more environmental friendly option with respect to **EGEDry® CobaltOct** due to restricted water solubility. **EGEDry® Cobalt WB** is designed for waterborne air-drying coatings. **EGEDry® Cobalt HS** is designed to be used in low-VOC high solid coatings. Common usage levels are between 0.02 to 0.05 % based on metal on vehicle solids.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® CobaltOct	12, 10, 8, 6, 5 Octoate	WS, D60, Toluene
EGEDry® CobaltNeo	12, 10 Neodecanoates	D60
EGEDry® Cobalt WB	6 Neodecanoates	D60
EGEDry® Cobalt HS	10 Octoates	Fatty Acid Ester (VOC-free)

EGEDry® Manganese (Mn)

Manganese driers are highly viscous red-brown solutions of metallic soap of manganese with various acids and chelating agents in different solvents. Manganese is not only an active surface drier but also contributes polymerization greater than cobalt. Manganese is the drier of choice for printing inks among other applications. It is used in conventional architectural paints, wood coatings, backing enamels and in the paints where colour is not a restraint. EGE KIMYA offers different manganese-based driers for various applications.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® ManganeseOct	10, 8, 6 Octoate	WS, D60, Spindle Oil
EGEDry® ManganeseNeo	10, 6 Neodecanoate	WS, D60 Fatty Acid Ester
EGEDry® 511	1 Chelate	Solvent Blend
EGEDry® Manganese HS	8 Octoate	Fatty Acid Ester



DRIERS



EGEDry® Iron (Fe)

Iron-based driers are dark red-colored solutions of metallic soap with 2-ethyl hexanoic acid in aliphatic solvents. Although iron do have poor performance at ambient temperature, it has activity at elevated temperature ad therefore used as primary drier specifically in baking-stoving systems. Their dark colour limits their use only in dark-coloured baking systems. Iron-based driers find use in anti-corrosion coatings and aluminium paint as a replacement of lead.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® IronOct	10, 6 Octoate	WS, D60
EGEDry® IronOct WB	4 Octoate	D60

EGEDry® Zirconium (Zr)

Zirconium is second most efficient cross-linking agent, which generally replaces the lead in more environmentally acceptable systems. Although it exhibits better gloss and colour retention compared to Lead, Zirconium driers do not perform as well as lead under adverse drying conditions such as low temperature and high humidity. Zirconium, as a strong cross-linking agent, contributes hardness and provides better adhesion. Additionally, it is widely used in white paint since it reduces the yellowing tendency when used in combination with cobalt and calcium.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® ZirconOct	24, 18, 12, 6 Octoate	WS, D60
EGEDry® Zircon WB	12 Neodecanoate	D60

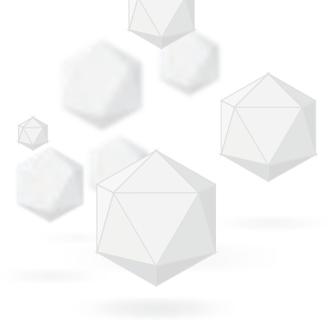
EGEDry® Lead (Pb)

Lead driers are yellow-coloured highly viscous solution of lead metallic soap in mineral spirits. Lead is regarded as “through drier” as it functions through the whole thickness of the coated film. It increases the resilience, toughness and overall endurance of the film. It is also known to provide water and salt resistivity. Lead driers are accompanied by cobalt or manganese and most of the time calcium in order to prevent precipitation, which ultimately causes haziness and therefore the drop in gloss. The usage levels are from 0.08 % to 0.6 % metal (Pb) on vehicle solid.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® LeadOct	36, 33, 32, 30, 24, 15 Octoate	WS, D60, Toluene, Xylene



DRIERS



EGEDry® Strontium (Sr)

Strontium driers are presented as second alternative for lead driers whose usage is significantly restricted. Strontium is a through drier which, unlike zirconium, has better pigment wetting properties thus avoids wrinkling. The fact that strontium driers do cause less yellowing with respect to zirconium counterparts makes them the most attractive for lead substitution.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® StrontiumOct	10 Octoate	WS, D60

EGEDry® Calcium (Ca)

Calcium is one of the most commonly used auxiliary drier. Although calcium carboxylates exhibit poor drying action by themselves, they, however, boost the performance of secondary (through driers) such lead and zirconium. Calcium driers, especially neutral ones, are used pigment wetting and dispersing agent and enhance hardness and gloss. Calcium significantly reduces the "loss of dry" of the system preventing the pigments adsorbed onto the main drier. EGE KIMYA offers both neutral with available 4, 5 and 6 % metal concentrations and overbased (basic) product (10 %) which has slightly reduced emulsifying properties than neutral driers. Calcium driers are normally used in conjunction with surface and through driers such as cobalt, manganese, zirconium, lead etc.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® CalciumOct Neutral	6, 5, 4 Octoate	WS, D60
EGEDry® CalciumOct Basic (Overbased)	10, 8, 6, 4 Isononanoate	WS, D60
EGEDry® Calcium WB	4 Octoate	D60

EGEDry® Barium (Ba)

Barium is another auxiliary drier which is used in conjunction with other driers to improve their performance. Although it exhibits poor performance when used on its own, it promotes the activity of through drier. As it is adsorbed by the drier adsorbing pigments, it serves as an excellent wetting and dispersing agent especially at severe weather conditions. The paints with barium as auxiliary driers show better gloss and minimized loss-of-dry. Barium driers are used in conjunction with surface driers such as cobalt and manganese

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® BariumOct	12.5 Octoate	WS, D60



DRIERS



EGEDry® Zinc (Zn)

Zinc carboxylates serve as auxiliary drier, which produces a hard thoroughly dried film by keeping the film “open” This property of zinc ends up harder films and prevents surface wrinkling. Though they do not promote drying at low temperatures, they are good wetting agents and improves gloss. Besides being used as drier, it is used as fungicide in some cases. Effective usage levels are between 0.03 and 0.2 % metal (Zn) on vehicle solids.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® ZincOct	16, 12, 10, 8, 6 Octoate	WS, D60

EGEDry® Mixed Driers

EGE KIMYA offers ready-made mix driers with exactly known and pre-determined metal concentration to address issues associated with the transportation and storage. These siccatives individually designed and produced to overcome specific problems that paint producers face. **EGEDry® 138M136**, for example, is universal drier combination of Co, Zr, Ca with optimized metal concentration to be employed in all oxidatively air-drying oil-modified coatings . While combination drier **EGEDry® 123M1102** offers one-to-one replacement to lead driers, **EGEDry® 134M3231** is specifically designed for systems to overcome issues related to high humidity and where improved film hardness is desired.

EGE KIMYA has full of scientific and technological background to examine and produce any kind of mix driers requested by its customers. For any custom-made mix siccative request, please do send your inquiry to info@egekimya.com

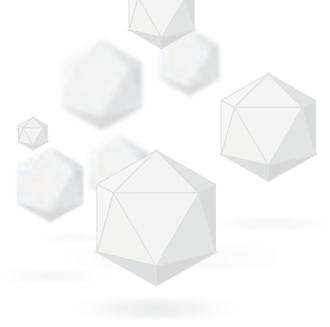
Product	Metals Total Concentration	Solvent
EGEDry® 13BM145	Co, Ca, Sr 10 %	WS, D60
EGEDry® 18M69	Co, Zr 15 %	WS, D60
EGEDry® 138M136	Co, Ca, Zr 10.2 %	WS, D60
EGEDry® 138M135	Co, Ca, Zr 8.8 %	WS, D60
EGEDry® 123M1102	Co, Pb, Ca 13 %	WS, D60
EGEDry® 134M123	Co, Ca, Zn 6 %	WS, D60
EGEDry® 134D3231	Co, Ca, Zn, Li 8 %	WS, D60
EGEDry® 13DM141	Co, Ca, Li 6 %	WS, D60



**READY-MADE
MIX SICCATIVES**

**CUSTOM-MADE
MIX SICCATIVES**

DRIERS



EGEDry® Speciality Driers

EGEDry® CopperOct is metal carboxylate that is rather not to be used as drier but as a fungicide in wood impregnation applications. It protects wood from fungus and insects and provides decorative green colour.

EGEDry® LithiumNeo is a multifunctional drier which boosts the performance of other driers especially when used in conjunction with cobalt and manganese. It not only works as a through drier especially in high solid coatings but also acts as a wetting and dispersing agent, as well as being a loss of dry inhibitor when used along with calcium. It is a drier additive as far as low temperature conditions are concerned.

EGEDry® BismuthOct is a through drier and can be used to replace zirconium in paint applications where low temperatures and high humidity conditions predominate. It can also be employed in 2K polyurethane coatings applications to replace tin and mercury-based catalysts.

EGEDry® PotassiumOct acts as a deep drier and is used in combination with cobalt and manganese. It carries many properties that Lithium Neodecanoate has including being an effective pigment wetting and dispersing agent, improving loss-of-dry etc.

Product	Available Concentration (%) Chemistry	Solvent
EGEDry® CopperOct	6 Octoates	WS, D60
EGEDry® LithiumNeo	2 Neodecanoates	WS, D60
EGEDry® BismuthOct	24 Octoates	D60
EGEDry® PotassiumOct	15.3 Octoates	DEG



ACCELERATORS



EGECat® Prime; Polymeric Cobalt Accelerator

EGE KIMYA, which has manufactured metal carboxylates for over forty years has concentrated its R&D efforts to come up with a product that will be as effective as cobalt octoate, but that will not share the same level of health concerns. The solution is **EGECat® Prime**.

EGECat® Prime is a cobalt carboxylate offered in a polymeric form. The polymeric structure decreases the water solubility of cobalt ion significantly, while maintaining all other performance characteristics unchanged. With all the benefits of reduced health and environment risks, EGECat® Prime still performs at the level of traditional cobalt octoates. Tests carried out on different UPR resin systems with a variety of initiators showed that there are no pronounced differences of EGECat® Prime and traditional cobalt accelerators.

The good news is that replacing a traditional cobalt octoate with EGECat® Prime does not require any reformulation. Since the good old cobalt does the job, gel time, peak time, peak temperature, hardness and color do not change. It is true that EGECat® Prime is a polymer and has a higher viscosity compared to traditional cobalt accelerators. However, this does not become an issue while mixing this new accelerator into the UPR.

EGECat® Prime gives similar performance results with any initiator tried in the lab. It goes without saying that every formulation has to be tested for performance before replacing the old cobalt driers. It is most probable that EGECat® Prime will deliver the expected performance.

EGECat® Prime, urethanized cobalt polymer offered in hexylene glycol with 4% cobalt concentration is fully commercialized and proprietary product of EGE KIMYA A.Ş.



Key Features



Innovative



**Environmentally
Friendly**



No Recipe Change



**Globally
Approved**

ACCELERATORS



EGECat® Cobalt

EGECat® CobaltOct promoters are used to accelerate the decomposition of peroxides at room temperature to crosslink unsaturated polyester resins (UPR).

EGECat® CobaltNeo promoters are recommended during transition period of REACH as the water solubility, thus bioavailability is much lower than **EGECat® CobaltOct** family.

EGECat® XB or **EGECat® XC** are the different types of cobalt based accelerators. The main difference is that they contain a synergistic promoter which improves the activity of cobalt and gives a better and lighter colour on the final application. Common usage levels are between 0.02 to 0.05 % based on metal on UPR.

Product	Available Concentration (%) Chemistry	Solvent
EGECat® CobaltOct	12, 10, 8, 6 Octoates	WS, D60 Toluene, Xylene, TXIB
EGECat® CobaltNeo	12, 10 Neodecanoates	WS, D60
EGECat® Cobalt XB	7* Octoates	Toluene
EGECat® Cobalt XC	7* Octoates	Toluene

*Total metal content

EGECat® Inhibitors & Promoters

EGECat® CopperOct and **EGECat® PotassiumOct** serves as synergistic with cobalt promoters in unsaturated polyester resin curing. It reduces the "pinking" effect of cobalt while alters the gel time and the exothermic temperature peak at the curing. Although they both exhibit synergistic effect with cobalt accelerators, the former is rather an inhibitor and the latter works as promoter.

Product	Available Concentration (%) Chemistry	Solvent
EGECat® CopperOct	8, 6 Octoates	WS, D60
EGECat® PotassiumOct	15.3 Octoates	DEG



CATALYSTS



EGECat® Polyurethane Series

EGE KIMYA offers a range of metal-based catalysts to be used in polyurethane industry. These catalysts can be divided into two groups; first class of which are used in rigid foam application and the rest are developed to be used in CASE (Coatings, Adhesives, Sealants, Elastomers) application where there is a tremendous motivation to replace tin and mercury-based catalysts.

EGECat® E239 and **EGECat® E2269** are potassium acetate and potassium octoate solutions in diethylene glycol. Having been known as isocyanate trimerization catalyst, both catalysts promote isocyanurate reaction and are used in a wide range of rigid foam applications.

The rest of the series are designed to replace tin and mercury-based catalysts in wide range of applications such as flexible slab stock, high density foams, spray, microcellular and rigid foam.

EGECat® Bismuth-S is a selective urethane gelling catalyst, which accelerates the reaction rate and causes rapid gelling. It is a bismuth-based catalyst which is more selective than tin and provides better mechanical properties. It can be used as a co-catalyst with a tertiary amine to accelerate the urethane reaction and presents a gradual increase of the viscosity (no induction period of low viscosity as mercury).

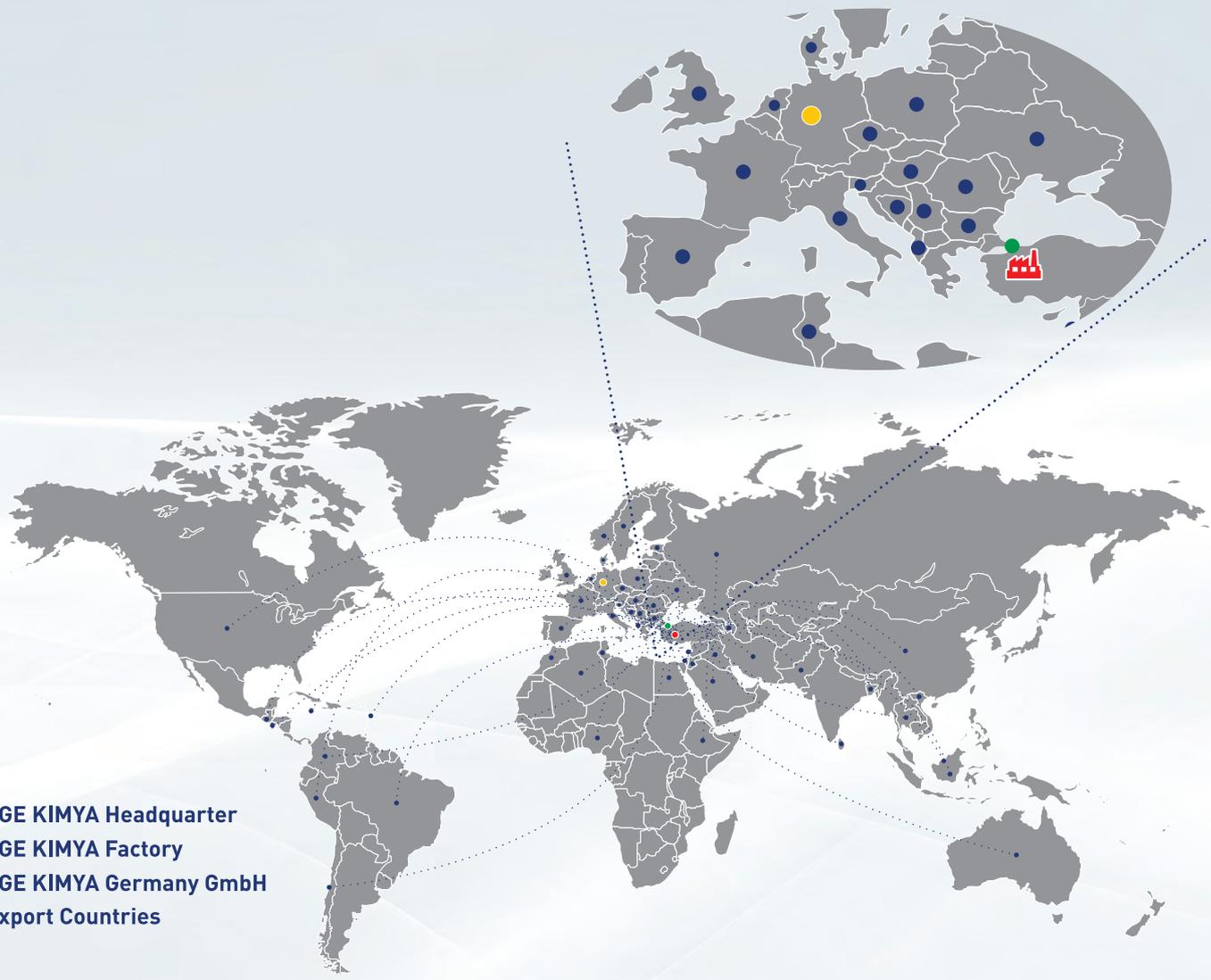
EGECat® Zinc-S is another catalyst that accelerates the reaction between polyol and isocyanate component, providing the optimal control of the drying properties, both during forced-drying and curing at room temperatures. It is a cross-linking catalyst which enables the modification of the final network, affords tack-free surface. It exhibits synergistic activity with bismuth catalyst, improves solvent resistance, increases film hardness. It is offered as an alternative to DBTL in many cases yielding better properties than DBTL. Use of this product often provides a prolonged pot life at comparable drying times.

EGECat® Zircon-S has high selectivity and shows less gassing and foaming, longer pot life and higher gloss than dibutyl tin dilaurate (DBTL). It exhibits synergistic effect with zinc and bismuth-based catalyst and it supports NCO/OH reactions.

EGECat® 8-S is a combination of Bi/Zinc carboxylates. It presents a good balance between efficient cross-linking, tack-free surface, less gas bubbles, fewer pin-holes, higher gloss and longer pot life.

Product	Available Concentration (%) Chemistry	Solvent
EGECat® E239	13 Acetate	DEG
EGECat® E2269	15.3 Octoate	DEG
EGECat® Bismuth-S	16 Neodecanoates	Solvent-free
EGECat® Zinc-S	19 Neodecanoate	Solvent-free
EGECat® Zircon-S	18 Neodecanoate	Solvent-free
EGECat® 8-S	16 Neodecanoate	Solvent-free



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