



**30** years of  
devotion to  
PVC Stabilizers



**KOREA's No.1**  
best-selling liquid type  
**PVC STABILIZER**



## KOREA's No.1 best-selling liquid type PVC STABILIZER

KD Chem, founded in 1986, has grown into a leading fine chemicals manufacturer with the aim of achieving a high quality level in PVC stabilizers as well as environmental sustainability. Presently, KD Chem is a leading market supplier of liquid organic stabilizers for PVC applications. KD Chem was listed on KOSDAQ, a tech-laden stock market, in 2015. Based on credibility and customer rapport, KD Chem strives to satisfy nearly 500 customers in the local market and abroad with high quality products and services. Our edge lies in our advanced and environmentally friendly manufacturing expertise in stabilizers and associated technical consulting services.

### *Environmentally Friendly Manufacturing Technology*

We have developed a variety of environmentally friendly stabilizers, taking the lead in advancing environmentally friendly manufacturing technology. Our environmentally friendly stabilizers are competitive in terms of quality when compared with conventional stabilizers. Our environmentally friendly stabilizers and low-odor stabilizers are at the highest quality level.



### *Technical Consulting Services*

Over the last three decades we have accumulated expertise in PVC stabilizers and PVC processing. We therefore serve as a total solution provider for our customers by identifying and resolving the problems customers might encounter while processing PVC products.

*We welcome any inquiries on PVC processing.  
KD Chem can impress you with its expertise.*

# Environmentally Friendly Stabilizers

KD Chem has launched environmentally friendly stabilizers in accordance with the trend toward greener products, continually reducing or eliminating harmful and possibly harmful raw materials. These stabilizers provide our customers with similar levels of performance compared to the traditional systems while protecting the environment.

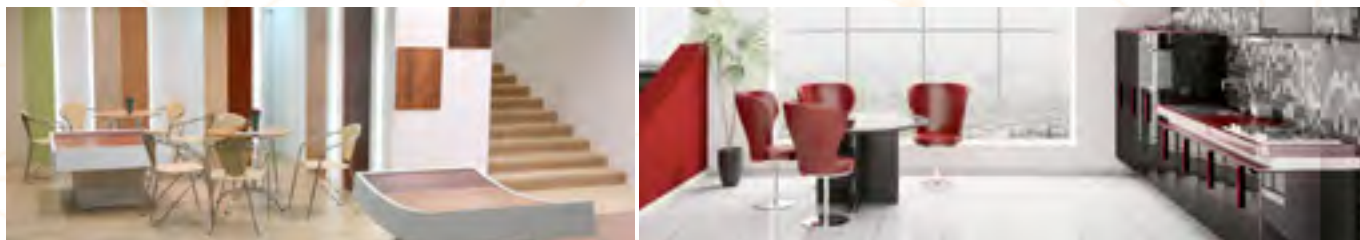


	Phenol-free Stabilizers	Low Odor Stabilizers
S-PVC	<ul style="list-style-type: none"> <li><b>Ba-Zn</b> LOX-203PF, LOX-303PF</li> <li><b>Ca-Zn</b> LTX-100PF, LTX-150PF</li> </ul>	<ul style="list-style-type: none"> <li><b>Ba-Zn</b> LOX-203PF, LOX-303PF, LOX-208H, LOX-209H, LOX-386L, LOX-901NH</li> <li><b>Ca-Zn</b> LTX-100PF, LTX-150PF, LTX-620N, LTX-630M, LTX-630Q, LTX-630T</li> </ul>
E-PVC	<ul style="list-style-type: none"> <li><b>Ba-Zn</b> LOX-800PF</li> <li><b>Ca-Zn</b> LTX-900PF</li> </ul>	<ul style="list-style-type: none"> <li><b>Ba-Zn</b> LOX-800PF, LOX-800NH</li> <li><b>Ca-Zn</b> LTX-900PF, LTX-900NH</li> <li><b>K-Zn</b> LFX-800, LFX-290H</li> <li><b>Na-Zn</b> LFX-900</li> </ul>

## History of KD Chem

- 2015** | Listed on KOSDAQ, a tech-laden stock market
- 2014** | Awarded 'Management Award for Small and Medium Business' by Chungcheongbuk Province
- 2013** | Designated as 'Small but Strong Global Corporation' by the Small & Medium Business Administration of Korea
- 2012** | Awarded 'Industrial Service Medal' award by the President of Korea
- 2011** | Expanded annual capacity of PVC stabilizers to 40,000MTs
  - | Awarded '\$20m Tower of Export' award by the President of Korea
  - | Awarded 'Culture Award for Small and Medium Business' award by the Ministry of Culture, Sports, and Tourism of Korea
- 2009** | Awarded 'Exemplary and Sincere Taxpayer' award by the National Tax Service
- 2008** | Company name was changed to KD Chem Co., Ltd.
- 2006** | Established Shandong KDC Chemical Co., Ltd. in Shandong, China
- 2002** | Acquired ISO 9001 certification
- 2000** | Awarded Certification of Non-toxic for Food Packaging (Ca-Zn type) from JHPA [L-7915]
  - | Opened Ansan Factory in Gyeonggi Province
  - | Opened Technical R&D center in Ansan, Gyeonggi Province
  - | Moved the Sales office to Ansan, Gyeonggi Province
- 1994** | Opened Boeun Factory in Chungcheongbuk Province
  - | Nominated as a superior technical company by the Korea Technology Credit Guarantee Fund
- 1990** | Designated as an excellent medium-sized company by Shinhan Bank and Hanmi Bank
  - | Expanded annual capacity to 8,000MTs
- 1988** | Opened Okcheon Factory in Chungcheongbuk Province
  - | Awarded Certification of Non-toxic for Food Packaging (Mercaptide type) from JHPA [L-7519]
- 1986** | Foundation of Korea Daehyup Chemical Co., Ltd.

## Recommended Stabilizers by **Applications**



### Liquid type stabilizers for **Films, Sheets** and **Compounds**

General purpose and high performance stabilizers for flexible and semi-rigid applications by calendering, and other processing methods such as extrusion, injection for the production of films/sheets, decoration films, flex-banners, hoses, and many other products. These grades are one pack type stabilizers, with fast gelation speed, excellent stability, lubricity and weatherability.

Composition	Product Name	Grade	Remarks
<b>Cd-Ba-Zn</b>	LX-400	High Performance	One Pack System
	LX-700	General	One Pack System
	LX-835	Economical	One Pack System
<b>Ba-Zn</b>	LOX-7200	High Performance	One Pack System Good Lubrication
	LOX-386S	General	One Pack System
	LOX-203PF	General	One Pack System Phenol-free Low Odor, Low VOCs
<b>Ca-Zn</b>	LTX-620N	General	One Pack System

### Liquid type stabilizers for **Decoration Sheets (High Gloss Film)**

These stabilizers can be used for semi-rigid applications, unlike the general purpose stabilizers where the heat stability could be insufficient. These Ba-Zn stabilizers can replace Cd-Ba-Zn types to eliminate cadmium. Both one pack system and two pack system are available. These stabilizers help to achieve excellent heat stability, high transparency and very good printability. Thus these grades are appropriate for both high glossy transparent layers and also bright colored printing layers.

Composition	Product Name	Grade	Remarks
<b>Ba-Zn</b>	LOX-6000	High Performance	Two Pack System with KAX-6000 (powder)
	LOX-6900	General	Two Pack System with DBZ-5000 (powder)
	LOX-7200	High Performance	One Pack System



### Liquid type stabilizers for **High Transparent Applications**

These stabilizers can be used for production of transparent packaging, bags, and various types of sheets and films. These stabilizers can replace Cd-Ba-Zn types without compromising transparency and heat stability. Also helps to achieve good initial color and dynamic heat stability.

Composition	Product Name	Grade	Remarks
Ba-Zn	LOX-7200	High Performance	Excellent Dynamic Stability One Pack System
	LOX-7500	General	One Pack System

### Stabilizers for **Tarpaulins** and **Flexible Banners**

These stabilizers are appropriate for manufacturing opaque type flexible applications, such as tarpaulins, flexible banners, and waterproof linings for indoor / outdoor. These stabilizers are suitable for high filler formulations as well, with high whiteness property, excellent color retention property and extremely low plate-out.

Composition	Product Name	Grade	Remarks
Cd-Ba-Zn	LX-450	High Performance	One Pack System
Ba-Zn	LOX-204A	General	One Pack System
	LOX-208H	Economical	Low Odor One Pack System
Ca-Zn Phosphoric complex	KAX-5011 DPA-800	General	Two Pack System Especially for Formulation with Bonding Agent.



## Liquid type stabilizers for **Food Contact Wraps**

These stabilizers are certified for food packaging applications by JHPA. Generally ESO and antifogging agent are used together for the production of PVC wraps. And KD Chem's stabilizers have good compatibility with ESO and antifogging agent, and will not interfere with the antifogging abilities of the final product. With good lubricity, these stabilizers also show very low plate-out.

Composition	Product Name	Grade	Remarks
Ca-Zn	LTX-630M	General	JHPA Approval [M-8354]
	LTX-630Q	General	High Lubricity JHPA Approval [M-8388]
	LTX-630T	General	High Transparency JHPA Approval [M-8388]

## Liquid type stabilizers for **Emulsion PVC (Plastisols)**

These stabilizers are used for the plastisols to produce tarpaulins, toys, floorings, gloves and other products using processing methods such as knife coating, slush molding, dipping, and casting. Depending on the emulsifiers of the each emulsion PVC resin, the result of the stability and coloration could slightly differ.

Composition	Product Name	Grade	Remarks
Ba-Zn	LOX-800	High Performance	One Pack System
Ca-Zn	LTX-241K	General	One Pack System



### Liquid type **Kickers for Emulsion PVC (Plastisols)**

These kickers expedite the decomposition speed of the blowing agent in the formulations of casting leather, wall papers, and foamed play mats for children.

These kickers also work as stabilizers, and help to achieve uniformed cell structure, and to maintain the viscosity of the plastisol.

Composition	Product Name	Grade	Remarks
K-Zn	LFX-220N	General	High Foaming Ratio
	LFX-890	Environmentally Friendly	High Foaming Ratio Especially for Play Mats
Na-Zn	LFX-900	General	High Foaming Ratio
	LFX-990	Environmentally Friendly	High Foaming Ratio Especially for Play Mats

### Powder type stabilizers for **Electric Wires, Flexible Hoses** and **Medical Applications**

These Ca-Zn type powder stabilizers are for the production of flexible electric wires and hoses.

These stabilizers minimize blooming and migration despite being Ca-Zn powder type stabilizers.

Composition	Product Name	Grade	Remarks
Ca-Zn	KCP-900W	Economical	For Black Colored Applications
	KCP-950	General	For White and Other Colored Applications
	MW-47	High Performance	For Transparent Wires/Hoses
	MW-30	High Performance	Transparent Medical Applications

# KD Chem Product List

## 1. General Purpose Grades for Suspension PVC

\* Form : L - Liquid, P - Powder

Composition	Form	Product	Characteristic and Application
Cd-Ba-Zn	L	LX-835	Good for transparent and opaque applications. Good anti plate-out properties. Can be used as one-pack, and also as two-pack with other powder type stabilizers.
	L	LX-400 LX-700 LX-824 LX-450	Excellent heat stability, lubrication, and weatherability. One-pack type stabilizers for flexible and semi-rigid applications. Fast gelation speed. Improved heat stability when used with epoxidized soybean oil. LX-450 has excellent color retention for white colored applications, and suitable for tarpaulins and flexible banners. LX-824 is economical.
	L	LX-404A	One-pack type stabilizer for rigid applications. Provides excellent heat stability, color retention and transparency. Improved heat stability when used with epoxidized soybean oil.
Ba-Zn	L	LOX-204A LOX-208H LOX-209H	PTBBA-free, one-pack type stabilizers for flexible applications. Provide excellent color retention for white colored applications. Suitable for use with large amount of filler. Improved effects when used with epoxidized soybean oil. LOX-208H is economical with lower odor. LOX-209H has lower phenol content and lower odor.
	L	LOX-386S LOX-386L	Provide excellent heat stability and anti plate-out properties. Suitable for flexible and semi-rigid applications. Improved effects when used with epoxidized soybean oil. LOX-386L has lower odor compared to LOX-386S.
	L	LOX-7100 LOX-7200 LOX-7500	Provide excellent dynamic heat stability and high transparency. Suitable for semi-rigid and rigid applications. Can be used as substitute for Cd-Ba-Zn type stabilizers. LOX-7200 has super transparency, while LOX-7100 has excellent initial color. Improved effects when used with epoxidized soybean oil. LOX-7500 is economical.
	L	LOX-110NH LOX-901NH	Stabilizers for excellent transparency with low phenol content and low VOCs. Provide excellent heat stability and excellent color retention. Improved effects when used with epoxidized soybean oil.
	L	LOX-203PF LOX-303PF	Phenol-free stabilizers. Provide excellent heat stability and excellent color retention. Improved effects when used with epoxidized soybean oil. LOX-303PF is also PTBBA-free and 2-EHA-free.
	L + P	LOX-6000 LOX-6900  KAX-6000 DBZ-5000	Two-pack type stabilizers for rigid applications. Can be used as substitute for Cd-Ba-Zn type stabilizers. LOX-6000 can be used with KAX-6000, and LOX-6900 can be used with DBZ-5000 to improve initial color and white color retention.  Powder type co-stabilizers for flexible and semi-rigid PVC applications. Provide improved whiteness and initial color properties when used with Ba-Zn liquid type stabilizers.
	Ca-Zn	L	LTX-620N LTX-630
L		LTX-630M LTX-630Q LTX-630T	Provide excellent transparency, lubrication and anti plate-out properties. One-pack type stabilizers for PVC wrap (cling films), suitable for T-Die extrusion. LTX-630T provides highest transparency, while LTX-630Q provides highest lubricity. Approved by JHPA [M-8354],[M-8388].
L + P		LTX-100PF LTX-150PF  MW-101 MW-106	Phenol-free two-pack type stabilizers for flexible and semi-rigid applications for calendering and extrusion processes. LTX-100PF can be used with MW-101 for white and pigmented applications, while LTX-150PF can be used with MW-106 for transparent applications.  Powder type co-stabilizers for semi-rigid and flexible PVC applications. Provide improved whiteness, initial color properties and heat stability when used with Ca-Zn and Ba-Zn liquid type stabilizers.



## 2. For Calender Foaming with Suspension PVC

\* Form : L - Liquid, P - Powder

Composition	Form	Product	Characteristic and Application
Ba-Zn	L	LOX-300C	Provides excellent external lubrication and anti plate-out properties. One-pack type stabilizer for artificial leathers.
	L	LOX-306-2	Provides excellent cell structure and lubrication when using large amount of PVC scraps.
	P	BXP-1055 BXP-1059	Powder type kicker stabilizers for suspension PVC applications. Suitable for hard typed top floorings with less plasticized applications. Provide excellent cell structure and prevent early blowing. BXP-1059 is very good also with large amount of PVC scraps.
Ca-Zn	P	BXP-1069	

## 3. Heat Stabilizer for Emulsion PVC Applications

Composition	Form	Product	Characteristic and Application
Ba-Zn	L	LOX-800	Suitable for emulsion PVC applications. Provides excellent heat stability, water resistibility and high transparency. Can be used for slush molding, dipping and knife coating.
	L	LOX-800NH	Environmentally friendly product which is PTBBA-free, 2-EHA-free, and nonylphenol-free. LOX-800NH is also low in phenol, with low odor. Suitable for emulsion PVC applications especially for top layers of coating and floorings.
	L	LOX-800PF	Phenol-free stabilizer, suitable for emulsion PVC applications. LOX-800PF is also PTBBA-free, 2-EHA-free, and nonylphenol-free. Provides excellent heat stability, water resistibility and high transparency. Can be used for slush molding, dipping and knife coating.
Ca-Zn	L	LTX-241K	Suitable for emulsion PVC applications such as floorings, top layer coatings and gloves. Provides excellent heat stability.
	L	LTX-900NH	Environmentally friendly product which is PTBBA-free and 2-EHA-free. LTX-900NH is also low in phenol, with low odor. Suitable for emulsion PVC applications for gloves, toys and top layers of coating and floorings.
	L	LTX-930PF	Phenol-free stabilizer, suitable for emulsion PVC applications for gloves, toys and top layers of coating and floorings. LTX-930PF is also PTBBA-free, 2-EHA-free, and nonylphenol-free.
	P	KAX-5011	Powder type stabilizer for suitable for emulsion PVC application, especially for tarpaulins where bonding agent is also used. Prevents fast viscosity increase over time. Must be used together with DPA-800

## 4. For Foamed Applications with Emulsion PVC

Composition	Form	Product	Characteristic and Application
K-Zn	L	LFX-220N LFX-290H	Suitable for foamed emulsion PVC applications with high foaming ratio such as wall papers. Provide fine cell structure when used with BX-300. LFX-290H has lower odor compared to LFX-220N.
	L	LFX-800	Suitable for foamed emulsion PVC applications with high foaming ratio such as wall papers. Fast foaming speed. Provides excellent color(white) and fine cell structure for high filler formulations. Also shows good compatibility with plasticizers.
	L	LFX-890	Environmentally friendly kicker with high foaming ratio for children's play mats. 2-EHA-free and low odor.
Na-Zn	L	LFX-900	Suitable for foamed emulsion PVC applications with high foaming ratio such as wall papers. Fast foaming speed. Provides excellent color(white) and fine cell structure when used with BX-500 for high filler formulations.
	L	LFX-990	Environmentally friendly kicker with high foaming ratio for children's play mats. 2-EHA-free and low odor.

## 5. Ca-Zn Type Stabilizers for Electric Wires / Cables

\* Form : L - Liquid, P - Powder

Composition	Form	Product	Characteristic and Application
Ca-Zn	P	KCP-900W KCP-950	Stabilizers for flexible electric wires. Provide excellent white color properties and blooming properties. KCP-900W is economical and suitable for black colored wires, while KCP-950 is suitable for white colored and pigmented wires.
	P	MW-47 MW-51P	Stabilizers for flexible electric wires and various transparent tubes/hoses. Provide excellent transparency. MW-51P provides even higher transparency and dispersibility. MW-51P is suitable for both suspension PVC and emulsion PVC.
	P	MW-30 MW-310	Stabilizers for flexible medical applications. MW-30 is for tubing applications by extrusion process, while MW-310 is for injection processes which require higher heat resistance.

## 6. Organo Tin Type Stabilizers

Types	Composition	Form	Product	Characteristic and Application
Butyltin	Dibutyltin maleate ester complex	L	SX-713 SX-310	Provide excellent heat stability, weatherability and high transparency. Initial color property is also excellent. Suitable also for blown films. SX-713 has low odor, while SX-310 is economical.
	Dibutyltin dilaurate complex	L	TL-803	Stabilizer and lubricant for PVC. Improved lubrication when used with maleate and mercaptide type stabilizers.
	Dibutyltin dilaurate	L	TL-1	Pure dibutyltin dilaurate. Provides excellent effect as catalyst for PU crosslink reaction.
	Dibutyltin diacetate	L	TA-01	Provides excellent effect as catalyst for PU crosslink reaction. Also reduces reaction time.
	Dibutyltin mercaptide	L	S-400 S-402	Suitable especially for transparent plate applications. Provide excellent heat stability, transparency and initial color. S-402 is economical.
Methyltin	Mono, dimethyltin mercaptide	L	DMT-1800	Suitable for transparent plates and sheets applications. Provides excellent heat stability, transparency and initial color.
Octyltin	Diocyltin mercaptide	L	S-800	Heat stabilizer for PVC, ABS, NBR and Co-polymers. Provides excellent heat stability and initial color. Improved heat stability when used with epoxidized soybean oil.
	Diocyltin mercaptide complex	L	S-99	Provides excellent transparency, lubrication and initial color. Excellent processing properties when used with DL-99R. Approved by JHPA [L-7519].
	Diocyltin dilaurate	L	TLX-01	Pure dioctyltin dilaurate. Provides excellent effect as catalyst for PU crosslink reaction. Approved by JHPA [L-7967].
	Diocyltin maleate ester complex	L	STX-7212N	Provides excellent heat stability, weatherability and high transparency. Initial color property is also excellent. Also, suitable for blown films.

## 7. Co-Stabilizers

\* Form : L - Liquid, P - Powder

Composition	Form	Product	Characteristic and Application
Special organic polymer complex	L	BX-300 BX-500	Special cell adjusters for use with stabilizers for foaming applications. Provide excellent cell stability and cell fineness. Good blooming and bleeding properties. BX-500 has lower odor compared to BX-300.
Epoxidized soybean oil	L	ESBO	Stabilizer and plasticizer for PVC. Provides excellent heat stability and weatherability.
Special complex	L	LA-04	Good for heat stabilizing in low temperature (60°C~120°C) after processing. Provides excellent initial color and color retention. Suitable for semi-PU processing with color retention properties.
Benzotriazol	P	BTZ	Powder type foaming retardant for printing layers. Provides good heat stability and distinctive effect as retardant.
Organic phosphoric complex	L	DHP-150 DHP-501	Fortify heat stability and weatherability when used with metal soap stabilizers such as Cd-Ba-Zn types and Ba-Zn types. DHP-150 has lower odor compared to DHP-501. Other types of phosphoric complexes are available as per each specific requirement.
Organic phosphoric complex	L	DPA-800	Provides excellent color retention ability and improves plate-out. Designed to be used with KAX-5011 for production of tarpaulin with emulsion PVC.
Ester complex	P	XQ-100	Additive for colored deco-sheets and semi-rigid applications. Provides excellent color retention and low temperature aging.

## 8. Lubricants and Other Additives

Composition	Form	Product	Characteristic and Application
Fatty acid ester complex	P	DL-99R	Non-toxic lubricant for rigid PVC applications. Provides excellent processibility when used with tin type stabilizers. Approved by JHPA [L-7518].
Amide	P	KES-61	Lubricant specially formulated for ABS and PS. Attention should be paid for blooming in large amount formulations.
Alkyl phosphate type	L	AS-915S	Antistatic agent with recommended dosage of 0.5 to 2.0 phr. Comparatively low influence on transparency and heat stability.
Polymeric acidic ester	L	FX-77	Prevents fast viscosity increase over time.



For further information, please go to :

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