



- BCAT / ZCAT Series Organo Bismuth / Zinc Catalysts
- BCAT / ZCAT Series Organo Bismuth / Zinc Catalysts
- TCAT Series Special functional Tin Catalysts.
- AUCAT Series Anti-hydrolysis Tin-free Eco-friendly Catalysts
- CUCAT Series Bubble-free Catalysts
 - Substitutes for Organo Mercury / Lead / Tin
- WCAT Series Moisture-cured Eco-friendly Catalysts
- FOCAT Series Specialized Catalysts for PU foam
- RM Series Thermosensitive catalysts
- NCAT Series Anticatalysts, negative catalysts
- ALCAT Series for waterborne alkyd, SICAT series for silicon rubber.
- Functional Additives for Polyurethane



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Specialize in Eco-friendly PU Catalysts and Additives



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Eco-friendly PU Catalysts Functional PU Additives



COMPANY PROFILE

Founded in 2013, Guangzhou Yourun Synthetic Material Co., Ltd. is a scientific research enterprise and manufacturer devotes to the development and application of eco-friendly PU catalyst and other functional additives, with a production capacity of 15000 tons per year. Relying on the professional advantages and rich experience in polyurethane industry, we provide customers with high-quality and differentiated technical solutions through innovative functional additives.

With the profound accumulation of the expert team and years of continuous R&D and innovation, Yourun catalyst has developed from a single series of CUCAT that initially replace organo mercury to the current general purpose catalysts (BCAT / ZCAT/ TCAT series), specialized functional catalysts (CUCAT / AUCAT /WCAT / FOCAT / SICAT series), and tailor-made functional catalysts, includes totally several hundred models. Among them, organo bismuth and zinc catalysts have same quality as the branded products in the market. Functional catalysts such as bubble-free catalysts (substitutes for mercury catalyst), antihydrolysis catalysts (not lose catalytic activity in hydrous materials), low VOC catalysts, reactive metal catalysts, etc. have filled the gap and achieved a leading position in the PU industry. The product application fields has achieved full coverage from the initial elastomer to the current polyurethane CASE field.

Besides PU catalysts, Yourun also provides catalysts for other polymer materials such as organic silicon (such as MS sealant, silicone rubber), alkyd coatings, polyester polycondensation, etc. And also provides special functional additives such as adhesives for bonding polyurethane with various substrates, antiabrasion agent, defoamer, antistatic agent, hydrolysis resistant agent, dispersant, rheological agent, antiyellowing agent, etc., in response to the technical shortcomings and market pain points in the segmented field of polyurethane.

As one of the most professional and reliable manufacturers of innovative catalyst in China's polyurethane industry, Yourun are deeply trusted by the market, and has reached extensive and in-depth strategic cooperation with many leading manufacturers in the PU industry.



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1.1 General Purpose Catalyst:

Includes BCAT organo bismuth, ZCAT organo zinc, BX Bi/Zn composite, and TCAT special tin, total four series.

1.1.1 BCAT series organo bismuth catalyst

General features of organo bismuth catalyst:

- Environmental protection: meet the requirements of international environmental protection regulations
- High catalytic activity and wide applicability.
- The sensitivity to moisture is lower than that of tin amine catalysts, but not as good as the CUCAT and AUCAT series catalysts that can replace organic mercury.
- It is easy to hydrolyze and inactivate in water, but it is more stable than T-9; For hydrolysis resistant and eco-friendly catalysts, please select AUCAT series.
- It will affect transparency when used in polyester system. AUCAT series is recommended for polyester system.

Classification of organic bismuth catalyst:

It is subdivided into five sub series including BCAT-E, BCAT-A, BCAT-B, BCAT-C and BCAT-T, with dozens of models. Yourun is one of the manufacturers that produce the largest variety of organo bismuth catalyst in the world. In addition to products equivalent to branded roducts, it also provides products for special purpose, such as TPU, polyester, low VOC, reactive type, etc.

Representative products:

Category Model Metal Content		Application Field	Compare With Branded Products		
		BCAT-E16	16±0.5%	General purpose fields	no difference
	Conventional	BCAT-E20	20±0.5%	General purpose fields	no difference
0	Туре	BCAT-E25A	25±0.5%	Coating, closed isocyanate baking paint, etc.	no difference
Bismuth		BCAT-E28A	28±0.5%	Shoe material, two-components PU coating,etc.	no difference
	Innovative	BCAT-T100R	10±0.5%	Reactive, zero VOC, recommended for automotive interiors and other fields with high environmental requirements	Yourun innovative products
	.,po	BCAT-E20CX	20±0.5%	Thermoplastic TPU without side reaction	Yourun innovative products

1.1.2 ZCAT series organo zinc catalysts

General characteristics of organo zinc:

- Environmental protection: meet the requirements of international environmental protection regulations.
- The catalytic activity is weak. In most cases, it is not used alone and needs to be combined with bismuth; Special organic zinc catalyst such as T50 has high activity and can be used alone.
- The influence on flowable time is small.

Classification of organo zinc catalysts:

It is subdivided into four sub series: ZCAT, ZCAT-E, ZCAT-Z and ZCAT-T. in addition to the products that have no difference with branded products. Yourun also provides special organo zinc catalyst, such as ZCAT-T50 with faster curing at low temperature.



Representative products are as follows:

Category		Product Model	Metal Content	Application Field	Compare With Branded Products	
General Organo Zino	ZCAT-EX16	16±0.5%	General fields, low viscosity and good compatibility	no difference		
	General	General	ZCAT-EZ19	19±0.5%	General purpose fields	no difference
			Z CAT-EZ22	22±0.5%	General purpose fields Especially suitable for aliphatic isocyanate system	no difference
Zinc		ZCAT-T50	Fast post curing; Keep good activity at low temperature; It is especially suitable for soft PU elastomers, such as gel glue, cooling pad, shoe material, etc. to improve the tackiness defect of PU gel surface, close to the silica gel characteristics of soft but non tackiness.		Yourun innovative products	

1.1.3 BX series composite organo bismuth-zinc catalysts

Provide customized Bi-Zn composite catalysts of special types and different metal content, Support differentiated requirements.

Representative products are as follows:

Category	Product Model	Composite Ratio	Compare with Branded Products
composite organo Bi-Zn catalyst	BX-EM14	Organo Bismuth : Organo Zinc =1:4	no difference
	BX-EM23	Organo Bismuth : Organo Zinc =2:3	no difference

1.1.4 TCAT series special organo tin catalysts



Comparison of hydrolysis resistence of special tin catalysts





Comparison of activity of special tin catalysts (base on PU systems)

Properties of TCAT series special organo tin catalysts

- High activity, strongly catalyzing the reaction between active hydrogen and isocyanates, wide applicability.
- Widely used in moisture curing systems, such as PU floor coating, adhesive and sealant, MS glue, etc.
- Widely used in polyurethane foam system as gel catalyst.
- Resistant to hydrolysis, high stability, and higher stability in aqueous systems than ordinary metal catalysts.
- Good compatibility, compatible with various PU systems, without affecting the transparency of the system.
- Compare favourably with the well-known branded organotin products.

Representative products are as follows:

Cate	gory	Model	Anti-hydrolysis Stability	Characteristics	Application
	General	TCAT-S12	Middle	General organo tin catalyst DBTDL (T12)	
		TCAT-S501	Middle to high	Anti-hydrolysis and eco-friendly, Compliant with REACH & RoHS regulations.	General purpose
		TCAT-S05	Middle	High activity, better compatibility than DBTDL	
		TCAT-S06	High	High activity and anti-hydrolysis	General purpose, especially suitable for aqueous systems, such as rigid foam, two part MS glue, etc.
		TCAT-S016	High	Delay catalysis, long pot life, fast post curing. Better delay catalysis than S054.	General purpose, especially suitable for production process requiring long pot life.
		TCAT-S022	High	Anti-hydrolysis, Higher activity than S06, Compliant with REACH & RoHS regulations.	General purpose, especially suitable for aqueous formula systems.
		TCAT-S028	Middle	Higher activity than S05, Compliant with REACH & RoHS regulations.	General purpose
	Organo Tin Functional Catalyst	TCAT-S029	High	Delay catalysis, Better delay catalysis than S016.	General purpose, especially suitable for production process requiring long pot life.
Organo Tin F		TCAT-S032	High	Mild activity, better hydrolysis ressistance than S06.	General purpose, especially suitable for aqueous systems, such as rigid foam, two-part MS glue, etc.
catalyst		TCAT-S038	Middle-high	Mild activity, better hydrolysis ressistance than S028.	
		TCAT-S059	Middle-high	Mild activity, better hydrolysis ressistance than DBTDL.	General purpose
		TCAT-S054	High	Delay catalysis, Compliant with REACH & RoHS.	General purpose, especially suitable for production process requiring long pot life.
		TCAT-S125	Middle	Stabler catalysis than DBTDL (T12).	General purpose, especially suitable for PU foaming.
		TCAT-NS01	Middle	Chelate tin catalyst, high catalytic activity.	
		TCAT-NS02	Low	Chelate tin, No crystallization precipitation at low temperature (-20°C), better deep solidification.	MS glue, especially suitable for MS glue that modified by non-isocyanate.
		TCAT-S130	Middle-high	High catalytic activity, good compatibility. better hydrolysis resistance than chelate tin catalyst.	General purpose, especially suitable for MS glue that modified by non-isocyanate, two-part aqueous MS glue, esterification.
	Innovativo	TCAT-WS11	Middle	Moisture-cured catalyst, low TVOC, Compliant with strictly regulations of plastic sport track.	General purpose, especially suitable for low TVOC applications, such as plastic sport track, Automotive interior accessories
	mnovative	TCAT-WS18	Middle	Reactive catalyst, with mild catalytic activity, does not migrate or precipitate in finished products.	General purpose, especially suitable for applications requiring low odor and non emission.

1.2 Functional Catalyst

Different from the general purpose catalyst, the functional catalysts are developed to replace organo mercury, lead and tin catalyst in various applications of polyurethane or to meet certain specific catalytic requirements according to the reaction characteristics and molding process of various isocyanates and active hydrogen:

Series Name	Characteristic	Application Field
CUCAT series	It is an eco-friendly metal catalyst that is insensitive to water and bubble-free, the catalytic characteristic is similar to that of organo mercury	CASE field
AUCAT series	Hydrolysis resistant, bubble-free, eco-friendly, free of tin	CASE field
WCAT series	One-component moisture-cured catalyst, bubble-free, high activity at low temperature	Coating, adhesive, sealant
FOCAT series	Innovative eco-friendly tin-free catalysts; Thermal sensitivity; High activity	PU foam
NCAT series	Negative catalyst and polymerization inhibitor, reducing the reaction activity of IP material after mixing, and extending the operation time	PU all fields
RM series	Thermosensitive delayed catalyst, low activity at room temperature, geometric increase in catalytic activity when the material temperature reaches the thermal sensitive point.	Heat curing products
Other series	SICAT series eco-friendly catalyst, used for MS glue, silicone rubber, etc; ALCAT series high compatibility catalysts, used for water-based alkyd resin.	Silicone Rubber Coating, etc.

1.2.1 CUCAT series: substitute for mercury catalyst in bubble-free CASE field

Organic mercury catalyst has four unique characteristics: activity is slow at front stage but fast at post stage, bubble-free and high performance. In particular, the characteristic of bubble-free is the unique symbol of organic mercury. It is generally used in various isocyanate and active hydrogen systems, but the high toxicity of organo mercury makes it almost banned in the world. Years of research have proved that it is impossible to completely replace organo mercury with only one eco-friendly catalyst. CUCAT series catalysts are developed by subdividing the application of organo mercury in various polyurethane systems. The catalytic effect of organo mercury can be achieved or even exceeded by selecting different CUCAT catalysts for different systems.

Remarkable characteristics of CUCAT series catalysts: bubble-free

The common PU catalysts basically have a strong catalytic effect on the reaction between isocyanate and moisture, which is difficult to meet the requirement of bubble-free in most products of CASE field. At present, it is recognized that organic bismuth, whose catalytic features are closer to that of organic mercury, can not avoid bubbling, bulging and cracking even if a more stringent moisture control production process is adopted, for only controlling the moisture in raw materials is not enough, environmental factors, including trace moisture in the air, are difficult to control but have a great impact. Organic bismuth is still unsatisfactory, organotin and amine catalysts that are more sensitive to moisture are even less applicable.

CUCAT series catalysts are developed to meet the bubble free requirements of products in CASE field especially polyurethane elastomer. Different from the common moisture sensitive amine/tin catalysts, it does not catalyze (weakly catalyze) the reaction of trace moisture with isocyanate, so as to avoid generating CO2 bubbles. Under the working conditions of high temperature and high humidity, it can also effectively avoid the defects of multi bubbles, cracking, bulging, peeling and lusterless, surface stickiness, etc.

Taking CUCAT-DG02 catalyst suitable for MOCA curing system as an example, its typical characteristics are very close to organic mercury. See the following charts for details:



Catalytic feature of moisture insensitive and bubble-free



Catalytic feature of slow before and fast after

Representative products are as follows:

Category	Model	Most suitable system & catalytic characteristic	Application Field
	CUCAT-DG02	"Polyether + ISO + MOCA" systems; Similar to mercury catalyst	MOCA cured elastomer castors, rollers, PU parts, etc
	CUCAT-HAA	General purpose catalyst; Very insensitive to moisture	General purpose catalyst, applicable to CASE field
	CUCAT-K6	General purpose catalyst; The flow time is slightly longer	General purpose catalyst, applicable to CASE field
	CUCAT-GF02	"PAPI + castor oil" systems; activity is slow before but fast after	Electronic sealant, especially castor oil system
	CUCAT-HA02	"Polyether + amine + MDI" systems; viscosity / strength increase fast	Spray polyurethane urea, faster than bismuth at low temperature, better aging resistance.
Conventional function	CUCAT-HS	"MDI + BDO + Polyester / PTMG" systems; activity is slow before but fast after	Elastomer of MDI system, wheel, screen, etc.
	CUCAT-E02/E03/E06	"TDI + polyether + DETDA" systems; substitute for mercury and lead	Transparent elastomer does not fog and whiten. Such as skating wheels etc.
	CUCAT-S01	MDI systems, the flow time is longer than that of DBTDL (T12)	Suitable for extrusion polyurethane; In the occasion when the flow time is too short by using T12.
	CUCAT-HSF	"MDI+PPG+BDO" systems; mild exothermicity and fast post curing	CASE field especially for MDI+PPG+BDO system. mild gelling,small shrinkage.
	CUCAT-SW series	Polyester systems; It has thermal activity, activity is slow before but fast after; Substitute for tin catalyst	Screen Mesh, KPU shoe material, solvent-free leather, etc
Thermosensitive	CUCAT-RM series	Low or no activity at room temperature, long flow time, rapid curing at elevated temperature	It can be used in products of CASE field, especially in the process need long pot life but fast post curing
Reactive and low TVOC	CUCAT-V series	General purpose catalyst for gelling; Reactive, zero VOC	It is recommended to the fields that strictly control VOC such as automobile sponge, plastic runway, etc.
	CUCAT-U1	Special catalyst for targeted catalytic reaction of isocyanate with carbamate	It is used in the synthesis of waterborne isocyanate curing agent to reduce viscosity, improve compatibility and chemical resistance.
Special	CUCAT-G5A	Isocyanate trimerization catalyst, with mild activity and easy to control reaction	Synthetic TDI curing agent, reduce free TDI content < 0.5%
functional	CUCAT-G22	Trimerization catalyst special for HDI, with high activity and mild reaction	Synthetic HDI trimer. Light color, not affect appearance color
	CUCAT-WN series	It is soluble with sodium silicate and the exothermic reaction is mild	It is used for curing system of isocyanate and sodium silicate, such as reinforced polymer material, which meets the requirements of new safety regulations.

1.2.2 AUCAT series anti-hydrolysis and tin-free eco-friendly catalyst

Most organic metal catalysts such as bismuth, zinc and tin catalyst will hydrolyze and lose activity. When premixed into hydrous raw materials, the catalytic activity gradually decreases until it is lost within a few days or even just a few hours. For example, the anti-hydrolysis tin catalyst with special structure has a stable storage period of only more than one month, and ordinary bismuth quickly hydrolyzes and loses catalytic activity within a few hours. The hydrolysis failure not only leads to inconvenient use of catalyst, but also greatly hinders the innovation and development of polyurethane in some fields. Yunrun's AUCAT series of anti-hydrolysis catalysts have the typical characteristics are as follows:

Hydrolysis resistant

Stable storage in aqueous system, long-term storage.

- ◆ Targeted catalytic feature Selectively catalyzes the reaction of hydroxyl and isocyanate.
- Strong gelling performance with high catalytic activity. Substitute for Tin catalyst, be used in all PU fields such as foam, coating, adhesive, PU leather, elastomer, etc.
- Eco-friendly and tin free.

Comply with environmental protection regulations.





Experiment system: Polyester UV resin Catalyst addition : 1% with good compatibility



Organo Anti-hydrolysis

Moisture content in system: 30% Catalyst addition : 10% Hydrolysis condition : In an oven at 60°C for two weeks

Representative products are as follows:

Category	Model	Catalytic Characteristic	Application Field	
	AUCAT-101	101 is similar to strong gelling bismuth, 202 is similar to organic zinc with long flowable time. They can be collected freely and can meet various processing	Various general purpose polyurethane fields, such as coatings, resin synthesis, PUD, elastomer, foam,	
	AUCAT-202	requirements such as fast curing, slow curing, slow before and fast after, etc.	hydrolysis. It is widely used in PU foam for toys, clothing, shoes, automobiles, etc	
	AUCAT-1001E	It is not sensitive to moisture and does not bubble, and substitutes for mercury, lead and tin catalyst.	Universal type, mainly used in bubble-free CASE field; Stronger gelling catalysis than 101.	
onventional function	AUCAT-T62	It is used as post forming catalyst to accelerate the post curing, which has no influence on the flow time.	CASE field, particularly for coating, the curing in winter is faster than Tin catalyst.	
	AUCAT-1301	High activity, similar to tin. It has thermal activity. Recommended for resin synthesis.	Used for synthesis of aliphatic non yellowing resin, such as shoe gel,etc.	
	AUCAT-7015	Not sensitive to moisture, targeted catalytic reaction of hydroxyl groups with - NCO groups, excellent molding mechanical properties.	It is recommended to be used in MDI system. Universal for polyester and polyether systems. It has high activity in PAPI+Castor oil system, and can replace T12.	
Thermal sensitive	AUCAT-RM series	Heat sensitivity, high activity, long flow time, fast curing and forming; The activity at room temperature is low, and the catalytic activity increases geometrically after the thermal mutation point.	It can be used for automotive battery packs glue, pultruded composite materials, artificial grass backing adhesive, carpet backing adhesive, solvent- free PU leather, high hardness large castings, etc.	
	AUCAT-101WA	Suitable for Aqueous systems, but their catalysis for the reaction between moisture and isocyanate is extremely weak; 101WA has high catalytic activity,	It can be directly added into water-based lotion for long-term storage without failure, and the paint film	
Waterborne Catalyst	AUCAT-202WA	while 202WA has mild catalytic activity, they can be freely combined to meet various process requirements.	will not lose its luster; Reduce pinholes and bubbles, and cures quickly in winter.	
	AUCAT-301WA	Water soluble thermosensitive catalyst with catalytic properties similar to RM301	Used for water-based system such as water-based isocyanate baking varnish, wood adhesive, stable and not deactivated.	
Esteri- fication Catalyst	AUCAT-ES series	Anti-hydrolysis, maintaining long-term catalytic performance; High catalytic activity with low addition; Eco-friendly, free of harmful heavy metal elements such as tin/antimony.	Catalyze esterification, such as synthesis of polyester polyols, ester plasticizers, etc.	

The characteristics of AUCAT series catalysts that are insensitive to moisture and bubble-free

Representative product AUCAT-7015

The photos on the right shows a comparison of the gelation appearance between AUCAT-7015 and T12 in the PAPI+castor oil reaction system. Under the same condition of moisture content, AUCAT-7015 is more insensitive and bubble-free than T12.

The characteristics of AUCAT series catalysts:

- Targeting catalytic, almost no catalytic reaction between trace moisture and isocyanates, and the rubber block is dense and bubble-free;
- High catalytic activity, improving production efficiency;
- Eco-friendly, free of mercury, lead, tin, and other restricted heavy metals.

AUCAT-ES series promote esterification reaction, used for the synthesis of polyester polyols, ester plasticizers, etc.



Dicarboxylic acid

Diol

5







Testing system: PAPI+castor oil polyol



1.2.3 RM series eco-friendly thermosensitive delay catalysts.

The ideal production process for most PU products is to have a sufficiently long flow time after mixing, and to quickly cure after the injection is completed. Especially for complex molds and large products, thermosensitive delay catalysts are the best choice. Yourun has developed a series of gradient thermosensitive and thermally active catalysts based on different molding process, with the following characteristics:

The temperature point of thermal mutation is clear. The thermal sensitive points of different isocyanates and active hydrogen systems are different, roughly distributed in the range of 45-120°C. The molding process with slightly higher thermal sensitive points of 10-20°C gets better physical properties; By using with AUCAT-202, the thermal sensitive temperature point can be appropriately reduced.

The catalytic activity is slow in front stage but fast in post stage. The flow period is extremely long, making it very suitable for the production of products with complex shapes, high hardness, etc. that require an ultra long initial flow time. High catalytic activity in the post stage, rapid gel forming and post curing.



Representative products are as follows:

Catalyst Model	Thermosensitive temperature	Catalytic Characteristic	Application Field	
AUCAT-RM301	60-70°C	Torgotod octolutic propertice		
AUCAT-RM401C	70-80°C	insensitive to trace moisture in the		
AUCAT-RM400	80-90°C	system and non bubbling.		
CUCAT-RM60	45-55℃			
CUCAT-RM50A	50-60°C	The series of thermosensitive catalysts	Large casting parts ; Pultruded profiles ;	
CUCAT-RM70	60-70°C	of gradient sensitive temperature, with little influence on the initial viscosity of material mixing. Material can be quickly formed and demolded after reaching the thermosensitive point. Carpet backin Adhesives; Battery Pack of Solvent-free lit Electronic spor	of gradient sensitive temperature, with Carpet backin little influence on the initial viscosity of Adhesives; material mixing. Material can be quickly Battery Pack g formed and demolded after reaching the Solvent-free lag	Carpet backing glue; Adhesives;
CUCAT-RM80	70-80°C			Battery Pack glue; Solvent-free leather,
CUCAT-RM90	80-90℃		Electronic sponge, etc.	
CUCAT-RM9100	100-120°C			
CUCAT-RM200	thermally	Low activity at room temperature, with significant release of activity as		
CUCAT-RM201	catalyst	temperature increases; Good physical properties and high mechanical properties		

1.2.4 WCAT series one-component moisture-cured eco-friendly catalyst

In view of the toxicity of T12 (dibutyltin dilaurate) and its harm to the environment, the international environmental protection regulations have more and more stricter requirements on its limit, and it have been banned in some fields such as toys and clothing. In the fields where it can still be used, the prepared work should be done in advance for its elimination and substitution. T12 also has some disadvantages, such as loss of catalytic activity at low temperature, bubbling and cracking in application of elastomer.

WCAT is a series of catalysts developed for many shortcomings of T12, such as high toxicity, many bubbles, low activity at low temperature, etc. In the application of one-component moisture-cured polyurethane, WCAT has many characteristics, such as reducing viscosity, reducing bubbles, shortening curing time, greatly improving the curing speed at low temperature and fast curing in winter.

Representative products are as follows:

ategory	Model	Catalytic Characteristic	Application Field
	WCAT-WS8	General-purposed eco-friendly tin catalyst with moderate activity, fast curing at low temperature, reducing bubbles.	Sleant, Waterproof coating, silicone PU floor coating, Hot melt adhesive, PU paint, etc.
	WCAT-WS17 General-purposed catalyst with moderat activity, reducing surface bubblesand pin		Waterproof coating, silicone PU floor coating, etc.
component sture-cured lyst	WCAT-WS13A	General-purposed catalyst, high activity especially suitable for outdoor construction in winter, fast surface and internal curing.	Waterproof coating, silicone PU floor coating, Paints, etc.
	WCAT-WP01	Eco-friendly tin catalyst, High catalytic activity, fast curing at low temperature	Non yellowing aliphatic moisture-cured system, such as anti-yellowing sealant, adhesive, coating, etc
	WCAT-WH03	Eco-friendly, no tin element, reduce pinholes on the material surface, and cure quickly at low temperature.	Recommended for aromatic moisture-cured systems with high environmental requirements, such as sealants, hot melt adhesive, etc.
	WCAT-WS11A	Zero TVOC, mild catalytic reaction, suitable for winter construction.	recommended for new national standard eco-friendly silicone PU and adhesive.

1.2.5 FOCAT series special functional catalyst for PU foam

It mostly uses amine or the collocation of amine with strong geling catalyst T9 /T12 to produce PU foam. However, tinhas been strictly limited or tantamount to being banned in more and more export products such as toys, clothing, shoe materials and automobile interiors, etc. The only available eco-friendly strong gelling tin-free catalyst is traditional organic bismuth. However, organic bismuth has many defects, such as low activity, short milk-white time, rapid hydrolysis and instability in hydrous material. The industry urgently needs high-performance catalysts that are eco-friendly, hydrolysis resistant, have a long milky white period, and high activity. FOCAT is developed based on the above requirements, with the following features:

Hydrolysis resistance

mois cata

It can be pre mixed into the hydrous material, which is conducive to the confidentiality of the formula and avoid the trouble and error of on-site addition; While organic bismuth and tin catalyst will gradually lose their catalytic activity in hydrous white materials.

- ◆ Eco-friendly, free of Tin (part of the products), meeting VOC and TVOC requirements Ensure compliance with harsh international environmental protection regulations such as REACH, ROHS, EN71-3.
- Extend the milky-white time.







Curing process curves of DBTDL (T12) and WCAT in one-component moisture-cured PU material

Standard 100 by OEKO-TEX, and meet the export requirements of foam products such as toys, shoes and clothing.

The flow time is not affected or extended. It release strong gelling catalytic activity at late foaming stage.



Representative products are as follows:

Category	Model	Catalytic Features	Application
	FOCAT-8003M	Gel type eco-friendly tin free delay catalyst. significantly extend the milky white period when used in combination with amine catalysis, and the post curing is faster.	"MDI+Polyether" foam, integral skin foam, car steering wheel,tyres
Gel catalyst	FOCAT-8007M	Eco-friendly tin-free catalyst, substitutes for DBTDL (T12)	General Purpose
	FOCAT-8009M	Promote post curing, good synergy with amine catalyst	Aliphatic Systems
	FOCAT-K15	Low odor post curing potassium catalyst	General Purpose
	FOCAT-8002	Delay foaming catalyst. Significantly prolong the milky white period, and the post-curing is faster, effectively improve the production efficiency; Prevent the collapse of foam, and ensure the dimensional stability of products.	High-density foam needing fast post- curing and rapid demoulding, shoe soles, immitation wood, etc.
Delay blowing-gel balance	FOCAT-8006P	Delay foaming catalyst, Delay the milky white period, but promote fast post curing. It can be used	Large block foam sponge, suitable for continuous production
catalyst	FOCAT-8006M	alone or in combination with catalysts FOCAT-NX100 and NX104.	Integral skin foam, especially for full- water foaming.
	FOCAT-NX100	Balanced catalyst for delay foaming.	
	FOCAT-NX200	Balanced catalyst for delayed foaming with super long milky white period.	General Purpose
Delay	FOCAT-NX104	For formulas with insufficient foaming rate, NX104 starts blowing about 50-60% faster than NX204; It is generally be used as an auxiliary catalyst. It is	General Purpose
catalyst	FOCAT-NX204	recommended to be used together with the balanced main catalyst NX100 / NX200 or other balanced catalyst.	General Fulpose







1.2.6 NCAT series Anticatalyst (Negative Catalyst, Polymerization Inhibitor)

Aromatic isocyanates, especially MDI, have high reaction activity, and the flowabe time of the mixture of two component raw materials is relatively short, which cannot meet the process requirements of certain products that require longer flowable time, such as floor coatings that need manual scraping, two-component adhesive used in the production of insulation boards, CPU with complex mold filling, etc; The single component MDI adhesive (prepolymer) has the defects of short storage time and poor stability. The NCAT series of polymerization inhibitors are developed to solve these problems.

Category	Model	Catalytic Characteristic	Application Field	
Anticatalyst	NCAT-YC02	Effectively reducing the reaction rate of polyurethane and giving longer pot life (operation time) with low viscosity: Effectively extending the	Commonly used for normal PU formula systems.	
Anticutaryst	NCAT-YC03	storage time of single component MDI adhesive (prepolymer);	Recommended for PU formula systems with castor oil.	

1.2.7 Other series of functional catalysts

In addition to catalysts used in the polyurethane field, Yourun has also developed functional catalysts for use in fields such as organic silicon and water-based alkyd coatings.

Representative products are as follows:

Category	Model	Catalytic Characteristics	Application Field	
	TCAT-NS01	Highly active chelated tin catalyst, promotes deep solidification, keeps stable storage.	Substituting for branded	
MS Glue Catalyst	TCAT-NS02	Special chelated tin catalyst. When stored in a low temperature of -20 $^{\circ}$ C, it remains liquid and does not crystallize and precipitate, which is suitable for winter construction.	products. Various curing systems containing active silane groups, including MS polymers, SPUR, silicone polymers, etc. It is widely used in sealants, adhesives, rubber (elastomers), coatings and other products based on the	
	TCAT-S130	High activity, good compatibility, the hydrolysis resistance is better than chelated tin catalysts.	above resins.	
	SICAT-03A	High catalytic activity for condensation reaction, which can efficiently and quickly promote the curing of the system; Tin-free, eco-friendly.	Organic silicone sealant, MS adhesive, etc	
SICAT Series Silicon Ruber Catalyst	SICAT-05	High catalytic activity, quick surface and internal curing with small dosage; SICAT-05 and SICAT-06	Dealcoholic RTV silicone	
	SICAT-06	can be used in combination to adjust compatibility and curing time; Tin-free, eco-friendly.	rubber system	
	CSCAT-CS04	Auxiliary catalyst, with good compatibility with water-based/oil-based alkyd resins, and when used in combition with the main catalyst, it can accelerate		
CSCAT Series Alkyd Catalyst	CSCAT-CS05	the oxidation crosslinking and film formation of coatings, resulting in faster curing; CS04 and CS05 can be used separately or in combination.	Water-based/oil-based alkyd coating	
, <u> </u>	CSCAT-CS11	Main catalyst. It can be added to oil or water emulsified resin, with good compatibility and no floating oil, layering, or precipitation phenomenon; The paint film cures quickly, good hydrolysis resistance, and can recover quickly after soaking in water.		



1.3 Attached table: catalyst selection guide (according to reaction system):

Anglischis						E	lastom	ier, Adl	hesive	, etc.							Moi Cur	sture- ing	PU Foam			Organic Silicon		
System							A	romati	c ISO											Aroma	atic ISC	כ		
		т	DI			MDI50	PAPI			F	MDI/C	-MDI			castor	Ali- phatic	Aro- matic	Ali- phatic	Inte- gral Skin	Fle: Fo	kible am	Rigid Foam	MS	PTV
Product Model	PPG/	PTMG	Poly	ester	PPG/I	PTMG	Poly	ester	PI	PG	PT	MG	Poly	ester	-oil	ISO	ISO	ISO	PPG	PPG	Ply- ester	PPG	IN S	
	Amine	Diol	Amine	Diol	Amine	Diol	Amine	Diol	Amine	Diol	Amine	Diol	Amine	Diol										
CUCAT-DG02 *	**	☆	☆		**	\$	**		**	☆	**	☆	☆											
CUCAT-K6 *	*	*	☆	☆	*	*	☆	☆	*	*	☆	*	☆		☆	*								
CUCAT-HAB/HAA	*	*	☆	\$	*	*	☆	☆	*	*	☆	*	☆		☆	*								
CUCAT-HA	*	☆			*	\$			☆	☆	☆	☆												
CUCAT-E series	*	*	☆	☆	*	*	☆		*	*	☆	☆				☆								
CUCAT-ET01	*	☆	*		*	*	*		*	*	\$	☆												
CUCAT-PDAA	*	☆	*	☆	*	*	\$	☆	☆	\$		☆				*								
CUCAT-HSF										**		*		☆										
CUCAT-HS												**	*	**										
CUCAT-SW02D			**				*					☆	*	**										
CUCAT-SW (high temperature)													*	**										
CUCAT-GF02 *						☆								\$	**									
CUCAT-HN	*	*	☆	☆	*	*	*	*	*	*	*	*	*	*	☆	*								
CUCAT-S1015 *	**	**	☆	*	**	**	*	*	*	**	*	*	*	*	*	**								
CUCAT-S04A *	☆	☆	☆	☆	*	*	*	*	*	**	*	*	*	*	☆	☆								
CUCAT-RM series	☆	☆	☆	☆	*	*	*	*	**	**	**	**	**	**	*									
AUCAT-101	*	*	*	*	*	*	\$	☆	☆	*		☆			☆	*								
AUCAT-202	*	*	*	*	*	*	\$	*	*	*	☆	☆			☆	*								
AUCAT-1001E	*	*	☆	☆	*	*	☆	☆	*	*		☆			☆	☆								
AUCAT-AS11	*	*	☆	☆	*	*	☆	*	*	\$					☆	*								
AUCAT-1301 *	☆	☆	☆	☆	☆	☆	☆	☆		☆		☆				*								
AUCAT-7015									*	*	*	*	**	**	**									
AUCAT-S1016	*	*	\$	*	*	**	*	**	*	**	*	*	*	*	*	**								
AUCAT-RM series	*	*	*	*	*	*	*	*	*	**	*	**	\$	**		**								
WCAT-WS17															*		**							
WCAT-WS13A																	**	**						
WCAT-WP01																		**						
WCAT-WH03																	**							
WCAT-WS11A																	**							
FOCAT-8002		**		**		**		**		**		**		**					*	**	**	**		
FOCAT-8003M		**				**				**		**							**	**	☆	☆		
FOCAT-8006P																			**	**	*	*		
FOCAT-NX series																			*	**	**	**		
ZCAT-T50	*	*	*	*	*	*	*	*	*	*	*	*				*								
BCAT/ZCAT/BX series	☆	☆	☆	☆	☆	☆	☆	☆	☆	\$	☆	☆				☆							☆	
NCAT-YC02/YC03	☆	*	☆	*	☆	*	☆	*	☆	*	☆	*	☆	*	*	*	*	*	*	*	*	*		
SICAT-05/06																								**
TCAT tin series	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	☆	**	**	**	**	*

2. Liquid Chain Extender

Representative products are as follows:

Category	Appearance	Equivalent	Ар
	Amber to dark brown liquid	106-133	Eco-friendly liqu for plastic PU sp
I DMA series	Liquid	55-150	Control the visco gel products; Im tape; Low hardn
TRP	Colorless clear liquid	122	S





3. Adhesive for bonding PU to various substrates

Model	Category	Appearance	Viscosity mPa.s, 25°C	Component	Characteristics	Application Fields	
CUBD-1	PU -Metal room temperature adhesive	Light red to deep red viscous liquid	80±30	Single	No need activation, but better performance if activated by heating.		
CUBD-2	PU -Metal room temperature adhesive	Light red to deep red viscous liquid	35±10	Single	No need activation, but better performance if activated by heating.	CPU, PU foam, TPU in molten state are structurally and firmly bonded to the surface	
CUBD-9	PU -Metal adhesive	Colorless to yellowish clear liquid	450±100	Single	No need activation, but better performance if activated by heating.	substrates (aluminum, steel, cast iron, stainless steel, cement, etc.) in a	
CUBD-10	PU -Metal adhesive	Colorless to yellowish clear liquid	30±20	Single	No need activation, but better performance if activated by heating.	wide temperature range, which is suitable for shear resistance bonding under dynamic high	
CUBD-3625A1	CPU/TPU -Metal	Brown clear 2300±500			No need activation, but better performance if activated by heating.	temperature, such as PU casters and rollers, etc.	
CUBD-3625B	A:B=1:5	Slightly turbid liquid	40±20	Dual	Better heat and water resistance. Suitable for injection molded TPU.		
CUBD-NL07	PU -Nylon room temperature adhesive	Reddish brown viscous clear liquid	1350±500	Single	Suggest heating activation, so as to get better performance.	CPU, PU foam, TPU in molten state are structurally and firmly bonded to Nylon surface in a wide temperature range, which is suitable for nylon wheel cores coated with PU, etc.	





Notes: ① Meaning of Icons : ** Strongly recommended * recommended * usable * The catalyst has thermal activity ② PMDI: Pure MDI ; C-MDI: Carbodiimide modified MDI

(This guide is only a rough directional guidance. The actual formula and process are complex and diverse, which is subject to actual verification)



lication Field

uid chain extender special oort track and floor coating.

osity and resilience of soft prove heat resistance of PU ess and high strength sealant.

Soft PU rollers

Product Characteristic

Not contain MOCA; Low odor, moderate reaction rate, and excellent physical properties

Small additions, significant functional improvements

Replace solid trimethylolpropane (TMP); Easy to use; Does not affect the resilience of PTMG system.











4. Functional Additives for Polyurethane

It is a common phenomenon that many additives have synergistic or conflicting effects. in order to avoid the conflicting effects between additives and ensure the functionality of additives in applications, Yourun had developed some special functional additives

Product Name	oduct Name Model		Function and Feature	Application	
Anti-Abrasion	CUBD-NM01	Colorless clear	Greatly improve the abrasion resistance of PU, NML not	Elastomers, castors,	
Agent	CUBD-NML	liquid	affect the transparency of end products.	rollers, etc.	
Polishing Agent	CUBD-MG01	White turbid liquid	Make the end products easy to polish and the surface brighter.	PU Elastomers	
Antistatic Agent	CUCE-W	Colorless clear liquid	Not affect the physical properties and color.of end products. The antistatic effect doesn't decay.	General purpose	
	UVK-CLV		Inhibit the yellowing and aging phenomenon caused by UV	General purpose	
Anti-yellowing Agent	UVK-CL4	Yellowish clear	and oxidant.	Polyether systems	
,	UVK-PG03A	iquid	Inhibit aging phenomena such as discoloration, powdering, stickiness, etc under strong sunlight.	Floor coating, adhesive, sealant	
Anti ovidant	UVK-CLO	Colorless clear	Inhibit the discoloraton, yellowing, aging and degradation	General purpose	
Anti-oxidant	UVK-TE	liquid	phenomenons caused by oxidant.	Polyether systems	
Anti-hydrolysis Agent	CUWR-AH01	Colorless clear liquid	blorless clear Improve the hydrolysis resistance and extend the service life of polyester PU products.		
	YRXP-02S	Colorless clear liquid	Non silicon defoamer, good compatibility, minimal impact on transparency.	CASE field.	
Anti-foaming Agent	YRXP-07	Milk white liquid	Silicone defoamer, excellent bubble inhibiting ang breaking effects.	General purpose	
	YRXP-08W	Milky white liquid	Moderately compatible with lotion. Does not affect interlayer adhesion and recoating ability.	Aqueous system	
	YRFC-06A	Brown clear liquid	Neutral and non-ionic, anti settling & hardening, reduce viscosity. improve leveling property.		
Discovert	YRFC-11	Brown clear liquid	A faint acid dispersant, prone to reduce the viscosity of PU system.	CASE Field	
Dispersant	YRFC-12	Yellowish paste liquid	A faint acid dispersant, prone to prevent settling of fillers in PU system.		
	YRFC-FM02	Brown clear liquid	Reduce viscosity, improve fluidity, anti settling, improve foaming uniformity.	PU foam	
Rheological Agent	YRFC-RG02A	Amber clear liquid`	A thixotropic agent, anti sagging and anti settling. Not affect the flowability at high temperature. Used for coating on vertical or slope surface.	PU, epoxy, acrylic coating, adhesive and sealant,etc.	
Dehydrating Agent	CUWR-WB30	Yellow to amber liquid	Eliminate the influence of trace moisture, reduce bubbles, bulges, hollows, pinholes.	CASE field	
Latent Hardener	YRLH-1106	Amber clear liquid	An imine based latent curing agent, commonly used as a latent curing agent for single part moisture cured polyurethane.	Waterproof Coating, Adhesive & Sealant	
	CUBD-TM01	Colorless clear liquid	Concentrated liquid, not affect the surface printing of the product	PU Elastomers	
Release Agent	CUBD-INR01A	Yellowish clear liquid	Premixed in PU raw material, Not affect the surface printing on end products	Extruded Profile	

Special recommendation: YRFC series of high-efficiency dispersant.

An efficient anti settling viscosity reducer designed for PU materials with powder fillers. Its structure contains characteristic groups that effectively reduce the adsorption between powder particles. Only a small amount of addition is needed to achieve the goal of reducing system viscosity, improving leveling, reducing scratches, and preventing the accumulation and solidification of powder fillers. The application characteristics are as follows:

- thousand centipoises), the viscosity can even decrease to 1/10-1/20 of the blank.
- term storage of powder fillers. Makes it easy to stir and disperse.
- the holes and reduces air bubbles.
- thereby reducing overall costs.



Special recommendation: Rheological Agent YRFC-RG02A

A small amount of addition can quickly form a non Newtonian fluid with thixotropy, that is, the liquid maintains low viscosity when there is shear force, and can quickly recover to a non flowing paste after rest. This characteristic is very suitable for anti sagging coating on vertical or slope surface. YRFC-RG02A has the following characteristics:

- agent that needs to be heated and melted when used, the process is simple.
- Solve the sagging problem of coating on vertical / slope surface.
- excellent rheological effect.
- materials from the reactor.





• The viscosity reduction effect is immediate. The experiment shows that for a medium viscosity system (with a viscosity of about 10000mPa. s), only 0.1-0.3% of the system powder amount needs to be added, and the viscosity can be reduced by 70%; For certain extremely high viscosity systems (with a viscosity of about several hundred

Anti settlement hardening. Prevent the formation of settlement and hardening at the bottom of the bucket after long-

Effectively reduce surface defects such as bubbles, bulges and dents. Significantly reduces viscosity, improves fluidity, greatly improves leveling during construction, reduces scratches, and improves the filling ability of small holes in concave and convex substrates (such as cement substrates), which facilitates the timely discharge of air in

Reduce costs. Due to its excellent viscosity reducing effect, the amount of filler can be increased to a certain extent,

Functional refinement, YRFC-11 is more inclined to reducing viscosity and improving wetting, while YRFC-12 is more inclined to anti settling and improve leveling, which can solve the problem of coarse particles and low mesh fillers being prone to bottom settling and hardening. Both have excellent effects in single and dual component systems.

Comparision of anti settling effect



It is liquid at room temperature and is convenient to be used. Compared with the conventional solid rheological

Excellent anti sagging performance, and has the function of anti settling and hardening at the bottom of the barrel.

• The addition amount is small, the cost is low, and the performance is excellent, a small amount of addition can get

+ It has no thixotropy and agglomeration at high temperature, does not affect the fluidity, and is convenient to export

• Neutral PH value. It does not affect the reaction rate of polyurethane and the aging resistance of polyurethane.



Anti sagging effect of YRFC-RG02A

II. Typical Application



Eco-friendly Sport Track Eco-friendly and odorless, low TVOC, fast curing at low temperature. REC: WS8, WS13A, Bi/Zn etc.



Floor Coating Provide long flow time after mixing, no bubbles, fast curing. REC: FR01, AS11, 7015, S029, etc



Adhesive and Sealant Eco-friendly, no bubbles, no bulging. One-part systems: WS8, WS13A, WP01A, etc. Two-part systems: HAB, 1001E, 7015, etc.



PU Sport Floor Eco-friendly and odorless, low TVOC, fast curing at low temperature in winter. REC: WS8, WS13A, WP01A, Bi/Zn etc.



Spray Polyurea, Hand Brushing Polyurea No bulging and bubbling. Enhances adhesion fastness REC: HA02, E16, DG02, WS13A, 1106,etc.



MS Sealant, Silicone Glue, RTV Silicon Rubber Long pot life, fast curing, bubble-free REC: NS01, NS02, S130, SICAT-06, etc.



PU Sealant for Automotive Battery Pack Thermal sensitive, Long pot life, Fast post curing, replace Mercury REC: RM50A, S029, S1015, S04A, 202, etc.



Rock wool insulation board, Honeycomb panel, two-component adhesive for wood industry. Long flow period, fast post curing and firm bonding. REC: AS11, S1016, 8002, YC02, YC03 etc.



Electrical Encapsulation, Nameplate Glue No bulging, no bubbling, low shrinkage. REC: GF02, HAB, 7015, K6, etc.



Adhesive for Shoes Tin-free, high activity, fast viscosity increasing, good transparency and compatibility. REC: 1301, 101, 202, etc.



Waterproof Coating Substitutes for tin, avoid bulging / bubbling, fast curing at low temperature in winter. REC: PD, FS01, WS17, WS13A, etc.



Coatings and Paint Anti-hydrolysis, high gloss, fast curing. For PU: 101, 202, 101WA, 202WA, etc. For Alkyd: CSCAT-CS04, CS05, CS11, etc.



Structural Reinforced Polymer Material High compatibility, anti-hydrolysis, no bubbles, low odor. Organic material: MK12, Bi / Zn, etc. Inorganic material: WNT05A, WNT07, YR11, etc.



Tin-free, thermosensitive,lot pot life, fast curing. REC: RM301, RM60, 202, etc.



Solvent-free PU Leather / Leather Slurry Long flow time, high thermal activity, eco-friendly, no butyl tin. REC: RM50A, 202, S02, S1016, Bi/Zn, etc.

Typical Application



PU Castor & Roller, PU Wheel, PU Cyclone, Etc. Low dosage, reduce cost, improve quality, improve production efficiency. REC: GW01, DG02, PDAA, HS, E06,etc.



Pultruded Profile, Large Casting Parts Thermal sensitive, Long pot life, Targeted catalysis, no bubbles. REC: RM301, RM401C, S01, S029, etc.



REC: E20CX, 7015, 101, etc.



RIM Microporous Elastomer

Tin-free, log flow time, gel strength rises quickly, reduces shrinkage rate. REC: 8003M, NX100, NX200, S029, etc.



PU Flexible Foam, High/Low Resilient Foam Tin-free, hydrolysis resistance, long flow period and fast forming REC: 8002, 8003M, 8006P, D1027, etc.



Synthetic PU Resin, UV-curing Coatings Eco-friendly, Tin-free, Good compatibility REC: 101, 202, Bi/Zn, etc.



TDI Curing Agent / Waterborne Curing Agent Reduce free monomer, increase functionality and lower viscosity. REC: G5A, G22, U1, etc.





Adhesive for Synthetic Grass and Carpet





Screen Mesh, Pipe Line Cleaner, etc. Long pot life and fast post curing. REC: SW02D, SW24B,etc.

Thermoplastic Polyurethane TPU Tin-free, less side reactions, improves the elasticity of low hardness TPU and shortens the forming time.



Integral Skin Foam, Tyre, Steering Wheel, Imitation Wood,etc.

Tin-free, hydrolysis resistant, long flow period, fast forming and bright thick skin REC: 8002, 8003M, 8006M, etc.



PU Shoe Sole, Vamp, Heel Eco-friendly, tin-free, long pot life, fast forming REC: 8002, SW02D, Bi / Zn, etc.



Soft PU Gel, PU Sticker, Cool Pillow, etc Odorless, anti-yellowing, no bubbles REC: 101, 202, Bi/Zn.



Slow-release Fertilizer Not floating, reducing the amount of glue used. REC: PDS, 202.



Electronic shockproof buffer sponge heat sensitive,lot pot life, fast curing. REC: RM401C, RM301, RM60, 202, etc.



Synthesis of waterborne PUD Eco-friendly, Tin-free, Good compatibility. REC: 101, BCAT series, etc.



Esterification, Synthesis of Polyester Polyol Anti-hydrolysis,eco-friendly,high catalytic activity. REC: AUCAT-ES02, etc.



III. Products List

1. Products List for PU Sport Track & Silicon PU Floor

- Solve the TVOC problem and environmental problems of MOCA.
- Solve the problem of foaming stability of micro foamed PU
- Solve the problem of slow curing at low temperature
- Solve the problem of slow curing of one-component non yellowing polyurethane



	Product	Model	Characteristic	Application
	Catalyst (one-part system)	WCAT-WS 8	Eco-friendly catalyst, It maintains good catalytic activity at low temperature, which solves the problem that the catalysis of DBTDL(T12) is too slow at low temperature (5 $^{\circ}$ C). It's catalytic activity is also higher DBTDL. It shortens the curing time more than twice of that of DBTDL.	Aromatic Moisture- curing system
		WCAT-WP01A	High catalytic activity. Even the dosage is half of DBTDL, the activity is still higher than that of DBTDL. It maintains good catalytic effect at the low-temperature (5 $^{\circ}$ C) in winter.	Aliphatic Moisture-curing system
		BCAT-E20	Eco-friendly organo bismuth catalyst, bismuth metal content: 20±0.5%	
	Catalyst (two-part system)	ZCAT-EZ19	Eco-friendly organo zinc catalyst, zinc metal content:19±0.5%, Low viscosity and easy to mix.	Two-part systems
		BX-EM23 BX-EM14	Composite catalyst of Busmuth and Zinc (Bi:Zn=2:3 or Bi:Zn=1:4)	
	Bubble-free CUCAT-TY01 Catalyst		Eco-friendly, free of heavy metals. Avoid bulging. Eensure synchronous curing of surface and insidel. Ample flow time and long pot life. Excellent post curing performance.	Two-part systems
	Crosslinker (Chain Extender)	TDMA-02	Eco-friendly, MOCA free, Low odor, liquid at normal room temperature, fast curing and forming, and good flexibility of finished products. If used with silicon PU of TDI and MDI type, it can realize one-time construction thickness of 8mm without bubbling and bulging. The reaction rate is higher than that of MOCA.	PU sport track, Sport flooring
		YRFC-13	YRFC-13 It is faintly acid dispersant which has excellent powder dispersion and viscosity reduction	
	Dispersant	YRFC-11	effect. It is recommended to be used for one-part silicon PU material with high powder content, two-part runway material, etc. without affecting the curing speed of material.	General purpose
	Anti-setting Agent YRFC-12 Anti-yellowing Antioxidant UVK-PG03A		Efficient anti settling and anti hardening agent. It can solve the problem of coarse particles and low mesh fillers being prone to settling and hardening at the bottom of the barrel. It has the characteristics of anti settling, improve leveling, reduce viscosity, and is more inclined to improve the anti settling and leveling characteristics.	General purpose
			It is high efficiency anti-UV and anti-aging additives. A small dosage can significantly improve the problems of pulverization, stickiness, discoloration and delamination of material surface under high temperature and high humidity construction environment.	General purpose
	Anti-foaming Agent	YRXP-07	It is high efficiency defoamer which can eliminate bubbles during mixing and paving, and does not affect the adhesion between layers.	General purpose
	Rheological Agent	YRFC-RG02A	Liquid at normal temperature, low viscosity, high speed dispersion, moderate stirring can reach thixotropic non-newtonian fluid state, greatly simplify production process and improve production efficiency. The same thixotropic effect can also be achieved by adding on site.	General purpose

2. Products List for PU Waterproof Floor Coating

- Solve the problems of bulge, bubble and pinhole for single and two-component waterproof coatings.
- Solve the problem of slow curing at low temperature.
- Extend the flowable time but shorten the curing time.
- The catalytic activity does not attenuate or fail during storage.
- Eco-friendly, not contain organic tin.



Product	Model	Characteristic	Application
	WCAT-WS 8	With high catalytic activity and fast curing speed, keeps high activity at low temperature in winter. The catalytic activity of WS8 is higher than that of DBTDL(T12). It can provide sufficient flow time, reduce bubbles and bulges, and have a long storage period.	One-part moisture curing system
PU Catalyst	CUCAT-PD	Eco-friendly and highly active. avoiding the defects of DBTDL (T12) that is prone to bubbling, bulging and peeling, suitibale for high temperature and high humidity environment. The surface and inside is dried at the same time, greatly improve the material performance, improve the aging resistance, and has a longer waterproof life.	
	CUCAT-FS01	It has the targeted characteristic of not catalyzing the reaction of trace water with isocyanate, avoid the formation of CO_2 , avoid the defects of bubbling, bulging and peeling.	Two-part system
	BCAT-E20	Eco-friendly organo bismuth catalyst, bismuth metal content: 20±0.5%	
	ZCAT-EZ19	Eco-friendly organo zinc catalyst, zinc metal content: 19±0.5%, Low viscosity and easy to mix.	
Latent Hardener	YRLH-1106	An imine based latent curing agent, normally used as a latent hardener for single part moisture-cured polyurethane.	One-part moisture-curing
Anti-catalyst	NCAT-YC02	It can effectively delay the reaction rate of polyurethane active groups, so that the material has a longer low viscosity operation time; It does not participate in the growth reaction of polymer chain segments and does not affect the physical properties of materials.	General purpose
Dispersant	YRFC-11	Efficient viscosity reducer, with excellent powder dispersion and viscosity reducing effect, recommend for waterproof material with high powder content. Reduce viscosity, improve leveling, and not affect curing speed of material.	General purpose
Anti-settling Dispersant	YRFC-12	Efficient anti settling and anti hardening agent. It can solve the problem that the coarse particles and low mesh fillers are prone to settling and hardening at the bottom of the barrel.	General purpose
Rheological Agent	YRFC-RG02A	Anti-sagging agent. It is used for one-part and two-part PU waterproof coating. A small dosage can quickly form thixotropic non-Newtonian fluid. It is used for anti sagging coating on vertical or slope surface.	General purpose
Dehydrating Agent	CUWR-WB30	Eliminate the influence of moisture in raw materials, reduce bubbles, bulges, hollows, pinholes and other defects.	General purpose
Anti-foaming Agent	YRXP-07	High efficiency defoamer. It is generally used in non-aqueous solvent and solvent-free systems, filler and filler free systems. It has excellent foam inhibition effect, and the dosage is low.	General purpose





3. Products List for PU Floor Coating

- Long pot life, slow viscosity increasing, non bubbling.
- Fast curing, the post curing time can be flexibly adjusted
- Suitable for construction at low temperature in winter.
- Catalytic activity ranking: 7015 > AS11 > FR01 > T62.



Product	Model	Characteristic	Application	
	AUCAT-AS11	Especially suitable for the "castor oil + polyether" systems; No deactivation in winter, good storage stability; Not sensitive to water, reduce the defects such as bubbles, pinholes and bulges caused by the moisture.		
	CUCAT-FR01	Medium catalytic activity, suitable for castor oil, polyether, etc., with long pot life, fast post curing and good molding performance.	"PAPI+ Castor Oil/PPG"	
Catalyst	AUCAT-T62	Post curing catalyst. It can be used alone or in combination with other catalysts to accelerate the post curing of material; It is not sensitive to moisture and no bubbl.	Systems	
	AUCAT-7015	Eco-friendly, anti-hydrolysis, bubble-free, suitable for "PAPI + Castor oil" formula systems.		
	CUCAT-TD01	Suitable for floor coatings with polyaspartic resin as the main material. Accelerate the curing speed at low-temperature in winter.	Polyaspartic floor coating	
	WCAT series	Refer to 1.2.4 (Page 8)	one-part systems	
Anticatalyst	NCAT-YC03	Delay the reaction speed of PU 2K coating, prolong the flow time, extend the leveling time, especially suitable for "PAPI + castor oil" systems.	Castor Oil Systems	
Dispersant	YRFC-13	It can significantly reduce the viscosity of the solvent-free formula containing fillers. only a small dosage can effectively reduce the adsorption between particles, so as to reduce the viscosity of	Castor Oil Systems	
Dispersant	YRFC-11	the system, improve levelness, reduce scratches, avoid the aggregation and hardening of powder fillers.	General Purpose	
Anti-settling Agent	YRFC-12	Efficient anti settling and anti hardening agent. Solve the problem that coarse particles and low mesh fillers are prone to settling and hardening at the bottom of the barrel. With the characteristics of anti settling, leveling, and viscosity reduction.	General Purpose	
Rheological Agent	YRFC-RG02A	A small dosage of 0.1-0.2% can effectively solve the powder sedimentation; Increasing the dosage to 0.6-2% can quickly form thixotropy and can be used for anti-sagging coating on vertical or slope surface.	General Purpose	
Dehydrating Agent	CUWR-WB30	Eliminate the influence of moisture in raw material. Reduce bubbles, bulges, hollows, pinholes and other defects.	General Purpose	
Anti-foaming Agent	YRXP-07	Widely used in non-aqueous solvent and solvent-free systems, filled and non filled systems, with excellent foam inhibition and bubble breaking effect.	General Purpose	
Antistatic Agent	CUCE-W	Good compatibility. The reaction is inert and does not affect the material properties; Low dosage, long-lasting antistatic property.	General Purpose	
Anti-abrasion Agent	CUBD-NM01	Liquid wear-resistant agent. It can reduce the friction coefficient of the coating surface and improve the wear resistance.	General Purpose	
Anti-yellowing Antioxidant	UVK-PG03A	Reduce the damage caused by external factors such as light, oxygen and heat to the molecular structure of PU. Delay the yellowing and aging of PU. The surface powdering and discoloration of PU flooring materials can be significantly improved by a small dosage.	General Purpose	

4. Products List for Spray Polyurea and Hand Brushing Polyurea.

Recommended products: CUCAT-HA02, organic bismuth BCAT-E16, etc. Compared with the general organic bismuth, HA02 has the obvious advantages as following:

- The gel is dense and has higher strength without bubbles. Generally, the strength is increased by 10 to 30% compared to using tin bismuth catalysts.
- Improve the undesirable phenomenon of hollowing and peeling, and use of organic bismuth catalyst.
- easy to foaming and bulging.

• High catalytic activity, small addition, fast increase in viscosity and initial strength.

Products Recommendation:

Product	Model	
	CUCAT-HA02	Compared to ord bubble.
Catalyst	CUCAT-DG02	More suitable for
(two-part system)	BCAT-E16	General eco-frier
	ZCAT-EX16	General eco-frier promote post cur
	WCAT-WS 8	High catalytic act
Catalyst (one-part system)	WCAT-WH03	Tin-free catalyst,
	WCAT-WQ01	Auxiliary curing a improve curing sp
Catalyst for Polyaspartic	CUCAT-TD01	Suitable for floor speed at low-tem
Anti-foaming Agent	YRXP-07	High efficient defi suppression and
Dispersant	YRFC-11	Efficient viscosity for waterproof ma curing speed.
Anti-settling Agent	YRFC-12	Recommend for prevent the power system.
Anti-sagging Agent	YRFC-RG02A	Anti sagging whil
Anti-abrasion Agent	CUBD-NM01	Improving wear r
Antistatic Agent	CUCE-W	No reduction in p
Anti-yellowing Antioxidant	UVK-PG03A	Liquid at normal the damage caus of polyurea and c





improve the adhesion fastness between the coating and the substrate. It greatly reduce the influence of wet substrate and moisture on the coating under high temperature and high humidity conditions, and avoid the problem of hollowing and peeling caused by gas accumulation at the bonding interface, which will occur by the

• The formula is flexible in material selection, reducing cost. Minimize the use of expensive amine terminated polyether and aromatic amine (DETDA / E100). Allow more PPG to be used in the formula, even allow the use of low activity diamines such as MOCA to replace DETDA as component P, and there will be no defects such as bubbling and bulging. While the use of ordinary bismuth catalyst to reduce the addition of DETDA or MOCA is very

Characteristic

dinary organo bismuth, it has higher activity, and is less likely to bulge and

two-part spray polyurethane/urea using MOCA.

ndly organo bismuth catalyst.

ndly organo zinc catalyst. Can be used in combination with organo bismuth to

tivity, good material storage stability, reduce surface bubbles and pinholes.

maintain good catalytic effect at low temperature.

agent. Paired with WCAT-WS8 for one-part polyurea material, significantly

coatings with polyaspartic resin as the main material. Accelerate the curing nperature in winte

pamer. Generally used in both filled and unfilled systems, with excellent foam breaking effects.

reducer, with excellent powder dispersion and viscosity reducing effect, used aterial with high powder content, reduce viscosity, improve leveling, not affect

powder flame-retardant polyurea systems, filler containing systems, etc., to der fillers from settling and solidifying, it doesn't increase the viscosity of the

le increase spraying amount on vertical or slope surface.

esistance without affecting adhesion.

physical properties, high efficient with small dosage.

temperature, easy to use, long-term effectness and migration resistant. Reduce sed by external factors such as light, oxygen and heat to the molecular structure delay the yellowing and aging of polyurea.



5. Products List for PU Adhesive and Sealant

Category	Model	Characteristic
	AUCAT-7015	Eco-friendly, anti-hydrolysis, bubble-free, suitable for "Iso + polyester / castor oil" formula systems.
	CUCAT-GF02	Bubble-free, contains eco-friendly tin element, suitable for "Iso + polyester / castor oil" formula systems.
Catalysts for two- part systems	CUCAT-HAB	Eco-friendly and bubble-free Catalysts, suitable for "Iso+ polyether polyol" formula systems.
	AUCAT-AS11	General-purposed, eco-friendly, anti-hydrolysis, bubble-free
	CUCAT-PDAA	General-purposed, bubble-free, high activity, but contains lead element.
	WCAT-WS8	High catalytic activity, good material storage stability, reduced surface bubbles.
	WCAT-WH03	Tin-free eco-friendly Catalyst, maintains good catalytic effect at low temperature.
Catalyst for one- part systems (Moisture-cured	WCAT-WP01A	High activity, the addition amount is half of DBTDL (T12), maintain good catalytic effect at temperature. Suitable for aliphatic one-part systems.
39361137	TCAT-NS01	The activity is more than 10 times higher than that of DBTDL (T12), suitable for MS sealant (a siloxane terminal sealant).
	SICAT-06	Eco-friendly tin-free catalyst for MS sealant, Silicone Glue, RTV Silicon Rubber, etc.
Dispersant	YRFC-11	It can significantly reduce the viscosity of the solvent-free formula containing fillers., improve the levelness, reduce scratches, avoid the aggregation and hardening of powder fillers;
Rheological Agent	YRFC-RG02A	A small dosage of 0.1-0.2% can effectively solve the powder sedimentation and improve leveling. Increasing the dosage to 0.6-2% can quickly form thixotropy, and can be used for anti sagging coating on vertical or slope surface.
Deferming Agent	YRXP-02S	Non-silicon defoamer, excellent foam inhibition and foam breaking effects, good compatibility with PU system, and little influence on transparent system.
Deloaming Agent	YRXP-07	Organosilicon defoamer, generally used in non-aqueous solvent and solvent-free systems, with excellent foam inhibition and foam breaking effects.
Moisture Scavenger	CUWR-WB30	It is used for water removal of non-isocyanate component in PU raw material, such as polyol, solvent, plasticizer and small molecular chain extender. It can eliminate the influence of moisture and effectively reduce bubbling, bulging, hollowing, pinhole and other defects caused by moisture.
Anti-aging Agent	UVK-CLV	Reduce the damage caused by external factors such as light, oxygen and heat to the molecular structure of PU, delay the yellowing and aging of PU. Only a small dosage can significantly improve the problems such as surface pulverization and discoloration of PU flooring materials.
Antioxidant	UVK-TE	Inhibit the thermal oxygen aging of polyurethane prepolymers, composites, products, etc., especially can prevent and delay the occurrence of discoloration, aging and degradation under high temperature. Recommend for applications such as preventing discoloration during prepolymer synthesis.
Antistatic Agent	CUCE-W CUCE-ASW	High-efficiency antistatic agent with good compatibility, Not affect the material properties; The addition amount is small, while the long-term anti-static property is durable. CUCE-W is for Polyether systems, ASW is for polyester systems.









6. Products List for PU Soft Gel products (cool pillow, PU sticker, mouse pad, PU sucker, etc)

Product	Model	
	BCAT-E16	Eco-friendly organo bism
	ZCAT-EZ19	Eco-friendly organo zinc
	CUCAT-H	High activity catalyst, low
PU Catalyst	AUCAT-101	Anti-hydrolysis reactive to activity is similar to that o AUCAT-202 to prolong th
	AUCAT-202	and graft onto the polyme solving the problem of oc
Anti-yellowing	UVK-CLV	High effectively anti-yello such as light, oxygen, an end products.
Antioxidant	UVK-YK05	Developed for yellowed li look more transparent. S
Chain Extender	TDMA-SF04	Functional chain extende improve the post curing s
Defoamer	YRXP-02S	Excellent foam inhibition Good compatibility with t
	YRXP-07	It has strong bubble brea bubbles and large bubble
Anti-settling Dispersant	YRFC-11	It can prevent sedimenta other visualeffect powder



cool pillow



cool cushion

21



Characteristic

nuth catalysts.

catalysts.

v dosage, long pot life, fast post curing, effectively reduce products odor.

type catalyst, with high catalytic activity and storage stability. The catalytic of organo bismuth, it can be used independently, and can also used with the pot life, shorten the demolding time. The catalyst can ultimately react ner chain segment, and after the reaction, there is no odor, fundamentally odor generated by catalyst.

lowing antioxidant, effectively solve the aging problem caused by factors ind heat on soft gel products, greatly improve the quality of the

liquid raw materials to eliminate yellowing and make soft gel products suggested to be used with CL4.

er. Greatly improve the resilience of gel products; And it can effectively speed and shorten the demolding time.

and breaking effects, preventing the generation of bubbles in production; he system and minimal impact on transparency.

king function for the generated bubbles and can quickly eliminate micro es in production.

tion and unevenness after adding high-density pearl powder and



cool pad





PU sticker



7. Products List for PU Elastomers

Product	Model	Characteristic					
	CUCAT-PDAA	Higest activity and bubble-free, but contain lead element.					
	CUCAT-HAB	Eco-friendly and bubble-free	lso + Polyether Systems				
	CUCAT-DG02	Suitable for "TDI+PPG+MOCA" system and "MDI+PPG+BDO" system,Long pot life and fast post curing, not sensitie to moisture					
Catalyst	CUCAT-HS	Suitable for "MDI+PTMG+BDO" stystem, Stable production process; Long pot life and fast post curing;Effectively reduce product shrinkage					
	CUCAT-SW02D	Suitable for "MDI+Polyester+BDO" system and "TDI+Polyester+MOCA/BDO" system. Long pot life and fast post curing.					
	CUCAT-SW24B	Suitable for "MDI+Polyester+BDO/EG". Eco-friendly, Suitable for medium to high temperature curing processes. especially recommended for polyurethane screen mesh of MDI polyester systems.					
Polishing Agent	CUBD-MG01	Solve the sticking problem during polishing, make the end products easy to polish and the surface brighter. Used for AGV wheels, effectively reduce the stains on the driving track.	General Purpose				
Anti-abrasion Agent	CUBD-NM01	Greatly improve the abrasion resistance of polyurethane products, will slightly affect the transparency of end products. Suitable for material with powder fillers.	General Purpose				
	CUBD-NML	Improve the abrasion resistance of polyurethane products, not affect the transparent of end products. Suitable for products with high requirement of transparency.					
Antistatic Agent	CUCE-W CUCE-ASW	No side reaction, no impact on product strength, the dosage is small, the color is light, and the appearance of the product is not affected. CUCE-W is for polyether systems, CUCE-ASW is for polyester systems.	General Purpose				
	YRXP-02S	Non silicon, high-efficiency, good compatibility, transparency and has little effect on the transparency of products.	General Purpose				
Deloamer	YRXP-07	High efficiency silicon defoamer is widely used in nonaqueous solvent and solvent-free systems, filled and unfilled systems, with excellent foam inhibition effect, small dosage.					
Moisture Scavenger	CUWR-WB30	It is used to remove trace moisture from polyurethane raw materials, eliminate chemical bubbles, and provide wear resistance of materials.	General Purpose				
Anti-yellowing	UVK-CLV	For both polyester and polyether systems. Solve the yellowing and aging problems cuased by UV and oxidant, but biases towards UV resistance.	General Purpose				
Agent	UVK-CL4	Solve the yellowing and aging problems cuased by UV and oxidant	Polyether System				
Antioxidant	UVK-CLO	Solve the yellowing and aging problems cuased by oxidant. It does not affect the appearance chromaticity of products. CLO is recommended for polyester systems, TE is recommended					
	UVK-TE	for polyether systems.					
Anti-hydrolysis Agent	CUWR-AH01	101 It can effectively inhibit and delay the chain breakage of ester bonds due to hydrolysis, and extend the service life of polyester PU products.					
Mold Release	CUBD-TM01	Spray on the mold surface. Not affect the surface printing on end products.	General				
Agent	CUBD-INR01	Premixed in PU raw material, Not affect the surface printing on end products.	Purpose				



8. Products List for PU Foam Products

Product	Model	Characteristic	Application	
	FOCAT-8003M	Eco-friendly tin free. Significantly extend the milky-white time when used with amine catalyst. Stable and faster post curing	MDI polyether system. Integral skin foam, steering wheel and tire.	
	FOCAT-8004M	Eco-friendly tin-free, substites for tin catalysts. Used with amine catalyst to promote post curing.	General purpose	
	FOCAT-8007M	Eco-friendly tin-free, substites for tin-amine catalysts	General purpose	
Gel catalyst	FOCAT-8009M	Post curing catalyst, good synergy with amine catalysts	Aliphatic bra sponge	
	TCAT-S501	Subtitutes for DBTDL (T12). Anti-hydrolysis and eco-friendly tin catalyst, with strong gel catalytic activity, and has typical catalytic characteristics of tin.	General purposed, with less amine catalyst, used for high resilience foam, with lower compression set and better permeability	
	TCAT-S06	Highly active organotin catalyst with high hydrolysis resistance.		
	FOCAT-K15	Low odor post curing potassium catalyst	General purpose	
Thermosens itive Delay Gel Catalvst	CUCAT- RM70NA	Strong gelling catalyst, fast demoulding. Normally used with balanced catalyst NX100 / NX200 or other balanced catalysts. If the foaming ratio is not sufficient, add a small amount of blowing catalyst NX104 or NX204.	General purpose.	
	AUCAT-RM Anti-hydrolysis, thermal sensitive, long pot life, fast post curing.		Electronic Buffer Sponge	
Delay	FOCAT-8002	Delay foaming catalyst. Significantly prolong the milky-white time, and the post-curing is faster, effectively improve the production efficiency; Prevent the collapse of foam, and ensure the dimensional stability of products.	High-density foam products which require fast post-curing and rapid demoulding, such as shoe soles, immitation wood, etc.	
	FOCAT-8006 P	Delay foaming catalyst, Delay the milky white period, but	Used for block sponge, suitable for continuous production method.	
blowing-gel balanced catalyst	FOCAT-8006M	promote fast post curing. It can be used alone or in combination with catalysts FOCAT-NX100 and NX104.	Used for integral skin foam, fulll-water foaming. Suitable for systems with high powder content.	
	FOCAT-33LV	Normal balanced catalyst	General purpose	
	FOCAT-NX100	Delay blowing-gel balanced catalyst	General purpose	
	FOCAT-NX200	Balanced catalyst with super long milky-white period.	General purpose	
Delay blowing	FOCAT-NX104	For formulas with insufficient foaming rate, NX104 starts blowing about 50-60% faster than NX204. Generally used with	General purpose	
catalyst	FOCAT-NX204	the balanced main catalyst NX100 / NX200, etc.		
Viscosity Reducer	YRFC-FM02	A small dosage can greatly reduce the viscosity of the powdery white material, improve the fluidity, and prevent the powder filler from settling; Improve foaming uniformity.	Foaming P material (polyol part) with high powder content.	
Anti-yellowing antioxidant	UVK-CLV	High efficiency, low addition; Excellent anti-yellowing effect; Excellent anti-aging effect.	General purpose	
Antistatic Agent	CUCE-ASW	Excellent antistatic effect, low dosage, no influence on foaming, antistatic effect can reach $10^8\Omega$	General purpose	
Anticatalyst	NCAT-YC02	Reduce the reaction rate and give longer milky white period.		















9. Products List for Synthetic Resin, Curing Agent and Coating

9.1 Catalysts for Water-based Alkyd Coating

Model	Category	Appearance	Compatibility	Characteristic	Application	
CSCAT-CS04	Auxiliary	Yellowish	Yellowish transparent Partially		It has good compatibility with water-based / oil-based alkyd resin. Partially When used in combination with main catalyst, it can accelerate the	
CSCAT-CS05	catalyst	liquid	water-soluble	oxidation cross-linking and film formation of the coating and curing faster; CS04 and CS05 can be used alone or in combination.	alkyd coating	
ALCAT-CS11	Main catalyst	Purple clear liquid	Partially water-soluble	It can be added to water emulsified resin with good compatibility and no oil slick, stratification and precipitation; No need for grinding. The paint film dries fast and can recover quickly after soaking in water.	Water-based alkyd coating	

Organo cobalt

Organo Bismuth AUCAT-101



Soak it in water at room temperature for 24 hours

take it out and place it for 2 hours



Comparison of compatibility in UV resin Experiment system: Polyester UV resin Catalyst addition: 1% with good compatibility



store in oven of 50°C for 14 days no hydrolytic precipitation

9.2. Catalysts for PU coating / Synthetic Resin

i. Conventional Catalyst for PU Coating / Synthetic Resin

Model	Environmental protection	Compatibility	Targeting and Catalyzing	Catalytic Activity	Characteristic	Application												
CUCAT-HN6	Eco-friendly tin	Lipophilic	It has high catalytic targeting for the reaction of	High	It is not sensitive to trace moisture and reduces pitting and pinholes on the surface of the paint film.	2K oil-based polyurethane, hydroxypropyl coating, closed isocyanate baking paint												
CUCAT-S02	compliance with REACH / ROSH	type, good compatibility with various	isocyanate and hydroxyl	High	Long pot life, fast post curing, rapid film forming.	Solvent free leather coating and PU resin synthesis												
WCAT-WS8 WCAT-WP01A	regulations.	resins	Catalyze the reaction of Isocyanate with water	High	High catalytic activity at low temperature, fast surface drying, and rapid film formation in winter construction.	Moisture curing coating. WP01A is recommended for aliphatic systems.												
CUCAT-U1		Lipophilic, good compatibility with curing	targeting and catalyzing the formation of urea formate group and biuret group	Moderate	A special catalyst for the synthesis of waterborne isocyanate curing agent, which targets and catalyzes the grafting reaction of specific active hydrogen and isocyanate to increase the functionality of curing agent. It can significantly improve the water resistance, chemical resistance, scratch resistance, gloss, and other characteristics of the paint film.	Synthesis of waterborne isocyanate curing agent, special PU and PUD resin												
CUCAT-G5A	It meets the restricted requirements	Organo zirconium	agent.	agent.	agent.	agent.	agent.	agent.	agent.	agent.	agent.	agent.	agent.	agent.	Catalyze isocyanate self polymerization	Moderate	Trimerization catalyst, it can significantly reduce the content of free TDI when used to synthesize TDI curing agent.	Synthesis of TDI curing agent.
CUCAT-G22	for heavy metals,azo, phthalates and other				Catalyze the self polymerization of aliphatic isocyanate	Mild	Used for the synthesis of HDI trimer, with light color and high conversion efficiency.	Synthesis of HDI trimer										
CUCAT-ER12	narmful substances in toy paint		Catalytic isocyanate- hydroxy reaction	Mild	It has the characteristics of typical zirconium catalyst, good compatibility, insensitive to moisture, good gloss of paint film.	2K oil-based hydroxypropyl coating												
BCAT series of Organo Bismuth					Lipophilic, with good	Catalyze the reaction of isocyanate with hydroxyl	High	General purpose organic bismuth catalyst; metal content: 16-28%	2K oil-based polyurethane, hydroxypropyl coating, closed isocvanate baking									
ZCAT series of Organo Zinc	with most resins		Good synergy, used as cocatalyst	Mild	General purpose organic zinc catalyst; metal content: 16-22%	paint, oil-based PU resin synthesis, PUD synthesis												
TCAT series organo tin	Delay catalysis, high activity, hydrolysis resistance, refer to page 1.1.4 (Page 2) General purpose																	

ii. Anti-hydrolysis catalysts

(can be stably stored in aqueous components for a long time without deactivation)

Model	Environmental protection	Compatibility	Targeting Catalysis	Catalytic Activity	Characteristic	Application
AUCAT-101 AUCAT-202		Lipophilic, highly compatible with hydroxyl acrylic resin, polyester resin and polyether resin		High~Mild	101 can significantly accelerate the curing of paint film. Good compatibility, the paint film does not lose gloss; Improve the abrasion resistance and scratch resistance of paint film; Stable storage in aqueous polar solvent, no hydrolysis failure, fast curing at low temperature. For PUD synthesis, the emulsion transparency can be improved, and the film-forming glossiness is high; 202 has a long pot life and promotes the crosslinking and curing of the paint film. It can collocate with 101 to adjust the pot life and the drying speed of the paint film.	2K oil-based polyurethane coating, hydroxypropyl coating, closed isocyanate baking paint, PU resin synthesis, PUD synthesis, Synthesis of UV-curable resin modified by PU,etc
AUCAT-101WA AUCAT-202WA	It meets the restricted requirements for heavy metals,azo, phthalates and other harmful substances	Hydrophilic, easy to emulsify, disperse and compatible in water based coatings	It has high targeting catalysis for the reaction of isocyanate and hydroxyl	High~Mild	It can be added to water-based emulsion / coating components, the activity is stable and not failure during storage, the paint film does not lose gloss, fast curing at low temperature; It can avoid yellowing, thickening and gelatinization when the catalyst is added into the curing agent; 101WA has high catalytic activity, 201WA can promote crosslinking reaction and improve hydrolysis and chemical resistance; The combination of the two can adjust the pot life and the drying speed of the paint film.	2K Waterborne PU coating, waterborne hydroxypropyl coating, waterborne closed isocyanate baking paint, etc
AUCAT-RM301 AUCAT- RM301WA	in toy paint	Good compatibility with various resins, 301 is lipophilic, 301WA is hydrophilic		High	Thermal sensitive catalyst, it has no catalytic activity at room temperature. When the temperature rises to the thermal point (about 70 Celsius Degree), the catalytic activity increases geometrically and the film is formed rapidly. 301WA can be added into waterborne emulsion / paint for stable storage.	Oil-based and water-based closed isocyanate baking paint.
AUCAT-1301		Highly compatible with polyester, polyether and other polyols, etc		High	It has significant thermal activity, moderate catalytic activity at room temperature, and geometric growth of catalytic activity at elevated temperature.	Synthesis of low activity aliphatic PU resin

iii. Other Functional Additives for PU Coating / Synthetic Resin

Category	Model	Appearance	Applicable system	
	YRXP-02S	Clear liquid	Oil-based system	
Defoaming Agent	YRXP-07	Semi clear liquid	Oil-based system	
	YRXP-08W	Yellowish cloudy liquid	Water-based system	
Antistatic Agent	CUCE-W	Clear liquid	Oil-based and water-based system	
Anti-yellowing	UVK-CLV	Yellowish clear liquid	Oil-based system	
Antioxidant	UVK-TE	Colorless clear liquid	Oil-based system	
Thixotropic agent	YRFC-RG02A	Yellowish clear liquid	Oil-based system	
Viscosity Reducer	YRFC-11	Brown clear liquid	Oil-based system	
Wetting	YRFC-11W	Brown clear liquid	Waterborne evetere	
dispersant	YRFC-WT01	Colorless clear liquid	vvalerborne system	



Characteristic

Non silicon efficient defoamer with good compatibility and transparency.

Organic silicone efficient defoamer wigh good bubble inhibiting and breaking effect, it can quickly eliminate micro bubbles and large bubbles.

Non silicon efficient defoamer wigh good bubble inhibiting and breaking effect, it can quickly eliminate micro bubbles and large bubbles.

Excellent antistatic effect, less addition, light color, does not affect the appearance chroma. It can reach antistatic effect of 10^8 Ohms.

Good compatibility, migration resistance, UV resistance, yellowing resistance, high efficiency and less addition; The color is light and does not affect the appearance chroma.

Inhibit thermal oxygen aging of paint film, prevent and delay the discoloration under high temperature.

Low addition, anti-sagging, improves leveling,

It is applicable to coatings with high powder filler content. Effectively reduces the adsorption between powder particles, achieving the purpose of reducing the viscosity of the system, improving the leveling, reducing scratches, preventing the accumulation and hardening of powder filler, and reducing the defects of paint film such as brush marks, orange peel, pinholes, etc. The viscosity can be reduced by about 70% by adding only 0.1-0.2% of the system powder; For some extremely high viscosity systems (viscosity is about several hundred thousand centipoises), the viscosity can even be reduced to 1/10-1/20 of the blank.

Non ionic dispersant, used for wetting substrates and powders, improving leveling, preventing shrinkage and wrinkled skin, floating color and other defects. YRFC-11W bias to improving the wetness of lotion and powder, YRFC-WT01 bias to the wetness of substrate and preventing shrinkage.

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10. Products List for PU Reinforced Polymer Material

Product	Model	Characteristic	Application						
	CUCAT-WNT05A	It has excellent compatibility with sodium silicate, and is CAT-WNT05A easy to disperse evenly in sodium silicate; No need to add glycerin; Better performance in summer.							
	CUCAT-WNT07	Compare with DMAEE, It has better compatibility, lower odor and higher activity, with a catalytic activity of approximately 1.3-1.5 times that of DMAEE.							
	CUCAT-WNT08	NT0 8 Compared with DMAEE, it has better compatibility, gel is faster and can effectively prevent slurry backflow.							
Catalyst for Inorganic Material	CUCAT-YR11	Spray foam material; Inorganic foam filler, etc							
	Dos WNT07	AEE 3%							
Catalyst for Organic	AUCAT-MK12	Eco-friendly anti-hydrolysis catalyst, insensitive to moisture and non bubbling; The exothermic reaction is mild, the curing is fast. The colloid is dense, with high compressive and shear strength.	Non foaming high strength organic reinforcement						
Material	FOCAT-8006 P	T-8006 P Long term storage and without failure in polyol component containing water, moderate catalytic activity, used for rapid blowing and molding of foam materials.							
Antistatic	CUCE-ASW	High afficiency antistatic affact lass dosage on influence on strength	Polyester system						
Agent	CUCE-W	י ואין האיטראע מוושימוט פוופט, ובא טטאפעצ, ווט ווווועפווטצ טון גוופועון.	Polyether system						
Defoamer	YRXP-08W	(RXP-08W Used for inorganic reinforced material, good compatibility, high bubble inhibiting and breaking efficiency.							



YRXP-07





Used for organic reinforced material, good compatibility,

high bubble inhibiting and breaking efficiency.



Organic

reinforcement

Dam reinforcement

11. Eco-friendly Catalysts for Solvent-free PU Leather Resin

Model	Colour (Fe-Co)	Density g/cm³ (25℃)	Viscosity mPa.s (25℃)	Thermosensitive temperature	Property
AUCAT-RM301	Dark blue liquid	1.060±0.02	755 ± 200	60-70 ℃	
CUCAT-RM50A	≤ 6	1.015±0.02	2200 ± 500	50-60 °C	Thermosensitive main catalysts. Has little impact on the initial viscosity of material mixing.Rapid
CUCAT-RM70	≤ 8	1.130±0.02	150 ± 100	60-70 ℃	molding and demolding after reaching the heat sensitive point.
CUCAT-RM90	≤ 10	1.160±0.02	285±50	°℃ 08-08	
AUCAT-202	≤ 3	1.060±0.02	17600 ± 4000	-	Assisted post curing catalyst, used with thermosensitive catalyst to reduce the thermosensitive temperature and accelerate post curing.

Products Characteristics:

- Non tin metal: environmentally friendly to meet domestic and international markets.
- at high temperature.
- + It has little impact on the tear strength and elongation after film formation, solving the problem of finished leather cracking
- Formula is flexible with combination of main and auxiliary catalyst.





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Inrganic material

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Thermal sensitivity: suitable for roller coating process, with a long flow period after slurry mixing and fast curing





