



TIBCHEMICALS

Catalysts

The decisive plus



TIB Chemicals at a glance

We, TIB Chemicals AG, are a global medium-sized chemical company. We offer our customers a diversified product range as well as custom solutions in the fields of basic chemicals, inorganic specialty chemicals and coating systems.

Our diversification offers a full product range and stable financial base. Our tight organization and lean structure translate to short decision-making processes within the company. Consequently, we are flexible and adaptive to the requirements and wishes of our customers. The economic success of TIB Chemicals is definitely based on three key factors:



EXPERTISE

We draw on a broad product range and over 140 years of tradition.



EMPLOYEES

With our 480 motivated and committed employees we steer the company towards success by means of creativity, discipline and an investigative spirit.



QUALITY

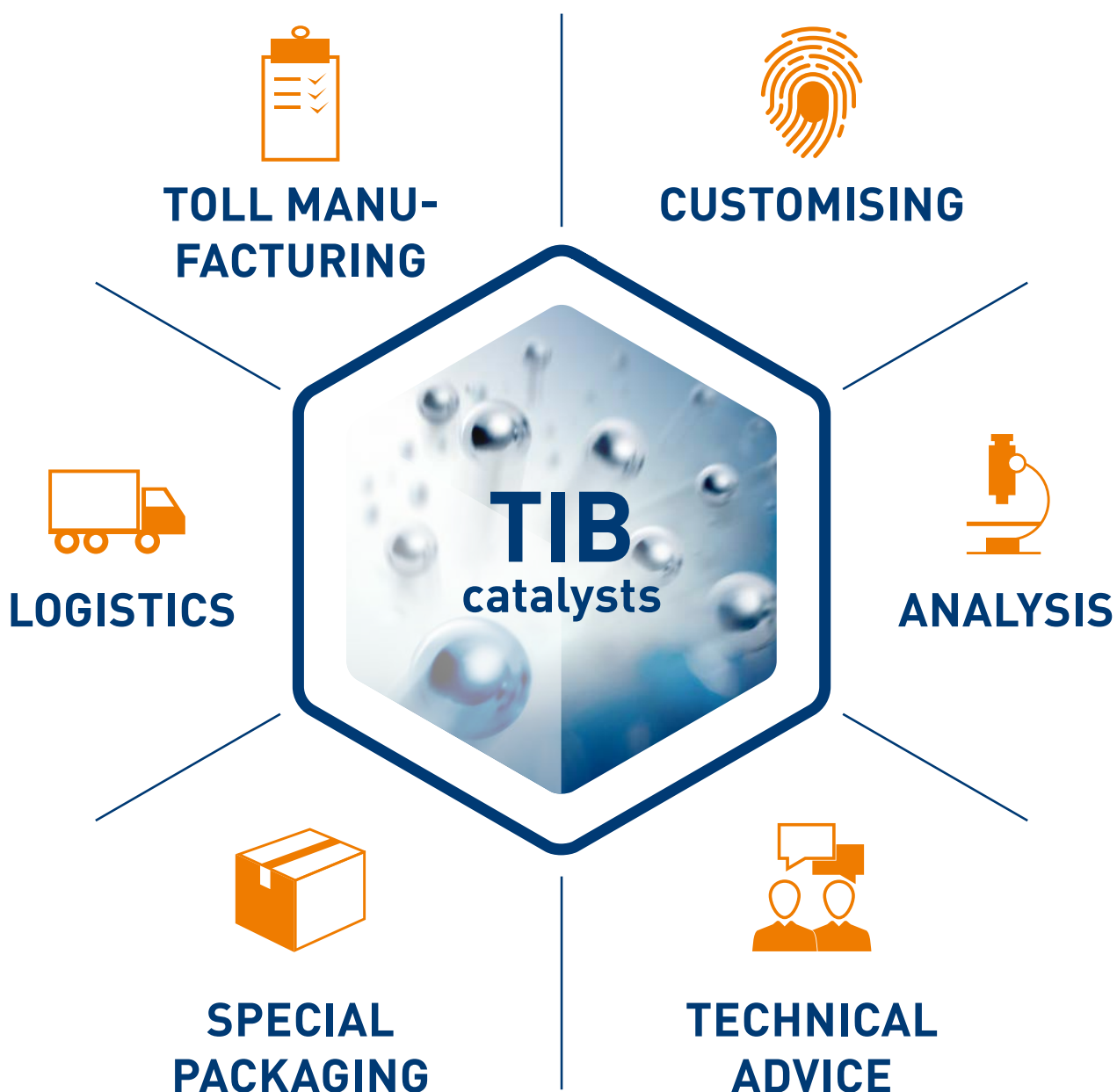
With innovative and customized products we are flexible and adapt to dynamic market conditions.

Through our subsidiaries TIBChemCorp Mexicana in San Luis Potosí, Mexico and TIB Chemicals Corp. in Houston, USA we have a very good global structure and are well positioned to deal with the demands of our customers. This allowed us to grow continuously over the last few years with our customers.



WE CATALYZE
YOUR SUCCESS.

TIB KAT[®] – the trademark of high-quality catalysts



Today's catalysts have to meet increasingly complex requirements for a vast range of applications.

Besides enabling specific reaction profiles for individual applications, they also have to comply with strict rules on environmental compatibility and low toxicity. In order to live up to all of these expectations, TIB Chemicals constantly works to enhance its TIB KAT® product range.

Completely unique solutions for the respective requirements are worked out in close contact with our customers.

In doing so, we benefit greatly from the enormous body of expertise we have accumulated over the years about raw materials, production processes, utilisation conditions and the advances made in connection with different formulations. This has made TIB KAT® a synonym for high-quality specialty catalysts the world over. In serving our customers, at TIB Chemicals we consistently strive to live up to this reputation.

And looking ahead, we want to be your partner of choice for developing catalysts that meet your special demands and fulfill ever-changing market requirements.



TIB[®] catalysts and their chemistry

TIB catalysts are tailor-made products that meet the special requirements of the following types of chemical reactions:

1 ESTERIFICATION REACTION



2 TRANSESTERIFICATION REACTION



What all of the reactions shown have in common is that they are catalysed by Lewis acids. Many metals exhibit Lewis acid properties. Most TIB catalysts are based on tin, bismuth, zinc or sulphonic acids.

This selection includes a wide range of Lewis acids of different strengths. They let you find the catalyst with the most appropriate activity for a given reaction profile.

3 URETHANE FORMATION



4 HYDROLYSIS/CONDENSATION REACTION OF SILANES/SILICONES



TIB KAT[®] – the right solution for every requirement

INORGANIC TIN CATALYSTS

TIB KAT 129	Stannous octoate
TIB KAT 160	Stannous oxalate
TIB KAT 162	Stannous chloride anhydrous
TIB KAT 188	Stannous oxide
TIB Blend 98	TIB KAT 162 on Silica Carrier
TIB KAT 152	Stannous chloride dihydrate

ORGANOTIN CATALYSTS

TIB KAT 208	Diocetyl tin di(ethylhexanoate) sol.
TIB KAT 214	Diocetyl tin dithioglycolate
TIB KAT 216	Diocetyl tin dilaurate (DOTL)
TIB KAT 217	Diocetyl tin oxide Mixture
TIB KAT 218	Dibutyl tin dilaurate (DBTL)
TIB KAT P 216	DOTL on Silica Carrier
TIB KAT 220	Monobutyl tin tris(2-ethylhexanoate)/MBTO
TIB KAT 223	Diocetyl tin diketanoate
TIB KAT 226	Dibutyl tin diketanoate
TIB KAT 226 V80	TIB KAT 226/VTMO-Blend
TIB KAT 229	Diocetyl tin diacetate (DOTA)
TIB KAT 232	Diocetyl tin oxide (DOTO)
TIB KAT 233	Dibutyl tin diacetate (DBTA)
TIB KAT 233 S	Dibutyl tin diacetate type (DBTA)
TIB KAT 248	Dibutyl tin oxide (DBTO)
TIB KAT 248 LC	Dibutyl tin oxide, low chloride (DBTO)
TIB KAT 250	Monobutyl tin dihydroxychloride
TIB KAT 251	Organotin oxide
TIB KAT 256	Monobutyl tin oxide (MBTO)
TIB KAT 318	Diocetyl tin dicarboxylate
TIB KAT 320	Diocetyl tin dicarboxylate
TIB KAT 324	Diocetyl tin stannoxane
TIB KAT 405	TIB KAT 218/silane blend
TIB KAT 410	TIB KAT 232 / plasticiser blend
TIB KAT 417	TIB KAT 232/silane blend
TIB KAT 422	Diocetyl tin silane blend
TIB KAT 423	TIB KAT 232/silane blend
TIB KAT 424	TIB KAT 248/plasticiser blend
TIB KAT 425	TIB KAT 232/silane blend

With the existing portfolio of TIB KAT[®] types the possibilities of current applications and properties are far from being exhausted.

Product overview

Our research and development activities and intensive collaboration with customers give rise to a steady stream of new, effective combinations and modifications for specific catalyst applications. Our expertise and many years of experience qualify us to support you, as our customer, in developing new applications of your own.

ZINC BASED CATALYSTS

TIB KAT 616	Zinc neodecanoate
TIB KAT 620	Zinc octoate
TIB KAT 623	Zinc acetylacetonate
TIB KAT 634	Zinc oxalate
TIB KAT 635	Zinc acetate

BISMUTH BASED CATALYSTS

TIB KAT 716	Bismuth carboxylate
TIB KAT 716 LA	Bismuth carboxylate
TIB KAT 716 XLA	Bismuth carboxylate
TIB KAT 718	proprietary Bismuth based catalyst
TIB KAT 720	modified Bismuth carboxylate
TIB KAT 789	Bismuth oxide
TIB KAT 721 E	proprietary Bismuth based catalyst
TIB KAT 721 W	proprietary Bismuth based catalyst

METAL CO-CATALYSTS - DRIERS

TIB KAT K15	Potassium octoate/DEG
TIB KAT K30	Potassium neodecanoate plasticizer blend
TIB KAT 508	Titanium triethanolamine complex
TIB KAT 517	Titanium ethylacetoacetate complex
TIB KAT 519	Titanium ethylacetoacetate complex
TIB KAT 520	Titanium acetylacetonate complex
TIB KAT 804	Copper oleate
TIB KAT 808	Copper naphthenate
TIB KAT 812	Cerium octoate
TIB KAT 813	Zirconium ethyl acetoacetate complex
TIB KAT 815	Iron acetylacetonate
TIB KAT 816	Zirconium octoate
TIB KAT 851	Aluminum ethyl acetoacetate complex
TIB KAT 852	Aluminum ethyl acetoacetate complex

SULFONIC ACIDS

TIB KAT MSA 70	Methanesulfonic acid 70 %
TIB KAT MSA 99	Methanesulfonic acid 99 %
TIB KAT SP	Methanesulfonic acid blend
TIB KAT MP	Blocked methanesulfonic acid
TIB KAT HES 70	Hydroxyethanesulfonic acid 70 %
TIB KAT SSSA	Sodium sulfosuccinate
TIB KAT S40	Sulfosuccinic acid 40 %
TIB KAT S70	Sulfosuccinic acid 70 %

FILTERING AID – ADSORPTION MATERIAL

TIB Tinex S	Bleaching earth
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PROCESS ADDITIVES

TIB AOA 2	Antioxidant
TIB STAB 115	Alkylphosphate based stabilizer
TIB STAB 142	Sodium hexahydrostannate
TIB SnCl₄	Stannic chloride
TIB SnCl₂ 41	Stannous chloride solution 41 %
TIB SnCl₂ 50	Stannous chloride solution 50 %
TIB SnF₂	Stannous fluoride solution
TIB TBTCI	Tributyltin chloride

TIB GLAS

TIB GLAS 100	Monobutyltinchloride (MBTC)
TIB GLAS 210	Hot-end coating material
TIB Finish GL08	Glas coating material

TIB KAT[®] for adhesives and sealants

Modern adhesives and sealants have replaced classic jointing and sealing methods in many areas and now facilitate modern production processes in the automobile, aircraft, or train manufacturing sectors.

Technological advances in lightweight construction which help achieve climate-related objectives worldwide are inconceivable without custom adhesives and sealants. TIB catalyses this technological progress with a wide range of optimised catalyst systems.

Based on longstanding experience and creative ideas our TIB catalysts are constantly enhanced and adapted to the growing needs of our customers in a wide variety of adhesive and sealant applications.

Apart from optimising efficiency profiles in the context of today's significantly expanded application conditions, we are driven by particularly toxicological regulations in our developments. All of this has made TIB Chemicals AG the leading provider of catalysts, able to meet today's requirements for toxicologically harmless variants.



	1 K MS silyl	2 K MS silyl	silicone resin	silane-modified polyolefines (MPE)	silane-terminated polymers	
TIB KAT 129	●	○	○	○	○	slower cross-linking catalyst
TIB KAT 216	○	○	○	●	●	low toxicity, standard catalyst for XPE pipes
TIB KAT 218	○	○	●	●	●	multi-purpose catalyst
TIB KAT 223	●	●	○	○	○	low toxicity, excellent for 1 K MS silyl
TIB KAT 324	○	●	●	●	○	shows higher activity than DBTL
TIB KAT 226	●	○	○	○	○	very quick catalyst, excellent for 1 K MS silyl formulations
TIB KAT 226 V80	●	○	○	○	○	still fluid for 1 K MS silyl even at lower working temperatures
TIB KAT 229	○	○	●	○	●	low toxicity, DOT alternative to TIB KAT 233
TIB KAT 233/233S	○	○	●	○	●	higher activity than DBTL
TIB KAT 410	○	●	○	○	●	toxicologically harmless plasticiser compound
TIB KAT 417	●	●	●	○	●	allows high adhesion values, slow catalyst in MS silyl systems
TIB KAT 423	●	●	●	○	●	toxicologically harmless, silane-modified catalyst
TIB KAT 425	●	●	●	○	●	toxicologically harmless, silane-modified catalyst

SILICONES & SILANE-MODIFIED POLYMERS

	PU adhesives and sealants	PU hot melts	PU casting resin systems	PU floors	PU elastomer	
TIB KAT 129	●	○	○	○	○	organic tin-free catalyst
TIB KAT 214	●	○	○	●	●	low toxicity, especially for floor systems
TIB KAT 216	●	●	●	●	○	low toxicity, standard catalyst
TIB KAT 218	●	●	●	●	○	multi-purpose catalyst
TIB KAT 220	○	○	○	○	●	monobutyltin-based catalyst
TIB KAT 229	●	○	●	○	○	low toxicity, DOT alternative to TIB KAT 233
TIB KAT 233	●	○	●	○	○	very quick catalyst
TIB KAT 318	●	●	●	●	○	low toxicity, improved storage stability
TIB KAT 320	●	○	○	○	○	improved storage stability
TIB KAT 616	●	○	●	●	○	Zn-based alternative to DBTL
TIB KAT 716/716LA	●	○	●	●	●	Bi-based alternative to DBTL
TIB KAT 718	●	○	●	●	●	tin-free catalyst
TIB KAT 720	●	○	●	●	○	Bi-based alternative to DBTL

POLYURETHANE

	RTV sealants, acetic acid-linking	RTV sealants, oxime-linking	RTV sealants, alkoxy-linking	Moulded resin systems, mould-making materials	
TIB KAT 129	●	○	○	●	very quick catalyst
TIB KAT 216	●	○	○	●	low toxicity
TIB KAT 218	●	●	○	●	multi-purpose catalyst
TIB KAT 229	●	●	○	●	DOT variation of the TIB KAT 233
TIB KAT 233	●	●	○	●	very quick catalyst
TIB KAT 320	●	●	○	●	improved storage stability
TIB KAT 324	●	●	○	●	higher activity than TIB KAT 216
TIB KAT 410	○	●	●	○	catalyst-plasticiser compound
TIB KAT 417	○	●	●	○	Standard catalyst for oxime-linking and alkoxy-linking RTV systems
TIB KAT 423	○	●	●	○	toxicologically harmless, silane-modified catalyst
TIB KAT 425	○	●	●	○	toxicologically harmless, silane-modified catalyst

RTV SILICONE

TIB KAT® for paints and coatings

Catalysts are core components in paint production. Therefore modern paints and coatings also have special requirements on the catalysts used to produce them.

They require high-performance formulating raw materials that ensure the chemical and physical resistance of systems. In particular, the utilisation and curing times of paints and coatings are determined by the catalysts used to make them.

With our TIB KAT® products we not only offer the latest products on the market but we are also in a position to cover a wide range of applications. We develop catalysts for automotive paints, building preservation and the

industrial sector. Long life is essential as is the ability to withstand heat, cold, ice and snow. In addition, these paints must be weather- and UV-resistant.

The TIB KAT® types meet these requirements and provide other benefits to customers. Our TIB KAT® range includes tin-based, bismuth-based and zinc-based catalysts which have a lower toxicological potential compared to standard catalysts, thus making them suitable for a wider spectrum of applications.



	blocked PU powder paints	uretdion-blocked PU powder paints	silicone powder paints	
TIB KAT P 216	●	○	○	low toxicity, TIB KAT 216 on special silica medium
TIB KAT 623	●	●	●	tin-free catalyst, lowers the linking temperatures

POWDER VARNISHES

	air-drying alkyd resin	UPE	
TIB KAT 616/620	●	○	improved full drying
TIB KAT 808	○	●	excellent stabiliser, already effective in low concentrations
TIB KAT 812	●	○	especially suitable at low temperatures and high air humidity
TIB KAT 816	●	○	most important lead substitute

DRYING AGENTS / ADDITIVES

	PU prepolymers	1 K / 2 K PU solvent-containing systems	PU high solids	2 K aqueous PU systems	isocyanates	electrodeposition paints	PU dispersions	
TIB KAT 129	●	●	●	○	○	○	○	high activity
TIB KAT 214	○	●	○	○	○	○	○	low toxicity, long processing time
TIB KAT 216	●	●	●	●	○	○	●	low toxicity, standard catalyst
TIB KAT 218	●	●	●	●	○	○	●	widely used catalyst
TIB KAT 220	○	●	●	○	○	○	○	long processing time, recommended for accelerated drying
TIB KAT 233	○	●	●	○	○	○	○	very quick catalyst
TIB KAT 248 LC	○	○	○	○	○	●	○	standard catalyst
TIB KAT 318	●	●	○	○	○	○	○	low toxicity, improved storage stability
TIB KAT 616	●	●	○	○	○	○	○	long processing time, accelerated drying recommended
TIB KAT 620	●	○	○	○	○	○	○	standard types, long processing and curing time
TIB KAT 716/716 LA	●	●	●	○	○	○	○	high activity, improved storage and colour stability, DBTL replacement
TIB KAT 718	●	●	●	○	○	○	○	catalyst blend, recommended for aromatic systems
TIB KAT 720	●	●	●	○	○	○	○	standard catalyst, good for elastomer systems
TIB KAT 815	○	●	○	○	○	○	○	only for systems where colour plays no role
TIB KAT K15	○	○	○	○	●	○	○	standard trimerisation catalyst

POLYURETHANE

TIB KAT[®] for binders

The complex properties of modern coatings are largely determined by the binders they contain.

Besides influencing the attributes of the resins, binders also affect usability. The use of high-quality binders also permits the manufacture of paints and coatings which are able to withstand a variety of environmental conditions.

Catalysts play a crucial role in efficiently producing different types of resins. Highly selective TIB catalysts also contribute to creating customer-specific polyester, alkyd, polyurethane and silicone resins. The quality of a catalyst depends on its catalytic activity but also on various other factors. TIB KAT[®] stands for effective catalysts which help minimise unwanted by-products while improving the colour of the final product and preventing turbidity.



	liquid, saturated polyesters	saturated powder polyester resins	polyester polyols	polycaprolactones	polycarbonates	polylactides	PET glycolysis	
TIB KAT 129	●	○	○	●	○	●	○	liquid catalyst with high esterification activity
TIB KAT 160	○	●	○	○	○	○	○	high activity
TIB KAT 162	○	○	●	○	○	○	○	allows low residual activities of the polyol with respect to isocyanates
TIB KAT 220	●	●	○	○	○	●	○	liquid catalyst, very active
TIB KAT 232	●	●	○	○	○	○	○	low toxicity
TIB KAT 248 / 248 LC	●	●	○	○	●	○	○	widely used catalyst for polyester in the low and middle molecular weight range
TIB KAT 250	●	●	○	○	○	○	○	lower start temperatures (160 °C), high activity
TIB KAT 256	●	●	○	○	○	○	●	extremely efficient catalyst especially for polyester in the high molecular weight range
TIB KAT 634	○	○	○	○	○	○	●	tin-free, very economical catalyst
TIB KAT 635	●	●	●	○	○	○	●	tin-free catalyst, soluble in ester

POLYESTER RESINS

	short-oil alkyds	medium-oil alkyds	long-oil alkyds	urethane-modified alkyds	silicone-modified alkyds	water-soluble alkyd resins	
TIB KAT 129	○	○	○	●	○	○	high activities for esterification reaction and urethane formation
TIB KAT 216	●	●	●	●	●	○	widely used catalyst with low toxicity
TIB KAT 218	●	●	●	●	●	○	liquid, widely used catalyst
TIB KAT 248/248 LC	●	●	●	●	●	●	widely used catalyst, leads only to very low turbidity when using soya oils
TIB KAT 250	●	●	○	○	○	○	very good replacement for lead oxide
TIB KAT 251	●	●	○	○	●	●	no influence on drying times in air-drying alkyds
TIB KAT 256	●	●	○	○	●	●	very good replacement for lead oxide, excellent for IPA/TA-based formulations
TIB KAT 616	○	○	○	●	○	○	tin-free alternative for urethane formation
TIB KAT 635	○	●	●	○	○	○	good colours especially in medium-oil and long-oil alkyds
TIB KAT 716	○	○	○	●	○	○	tin-free alternative for urethane formation

ALKYD RESINS

	polyester synthesis, 2-stage process	polyester synthesis, 1-stage method	cross-linking catalysis	stabiliser, polymerisation controller	
TIB KAT 129	○	●	○	○	high esterification activity
TIB KAT 248/248 LC	●	●	○	○	widely used catalyst
TIB KAT 250	●	●	○	○	very efficient for IPA-based formulations
TIB KAT 256	●	●	○	○	very efficient for IPA-based formulations
TIB KAT K15	○	○	●	○	replaces cobalt octoate, allows low colour numbers
TIB KAT 804	○	○	○	●	very good stabiliser, active in small dosages
TIB KAT 808	○	○	○	●	very good stabiliser, active in small dosages

UNSATURATED POLYESTERS

	polyester	alkyd resin formulations	
TIB A0A2	●	●	antioxidant for polyester/alkyd resin synthesis
TIB SSSA	●	●	monomer for alkyd and polyester resins, use of amines not necessary

MONOMERS & ADDITIVES

TIB KAT[®] for oleochemistry

Due to the large proportion of renewable raw materials in the form of plant-based and animal oils and fats, oleochemistry is closely tied to the concept of sustainability.

Oleochemical products are playing an increasingly important role in our lives today and are used in cosmetics, pharmaceuticals, food products and the chemical industry.

Oleochemistry is often based on carboxyl group reactions such as esterifications, transesterifications or saponifications. The greatest variety of catalysts is used here. Activity and selectivity are of crucial importance to achieve high reaction rates and high product quality.

The resulting products contain extremely low by-product concentrations and are visually very attractive.

TIB Chemicals offers under the TIB KAT[®] brand a wide range of high-quality tin-based organic catalysts, tin-based and zinc-based inorganic catalysts as well as sulphonic acid catalysts for the most diverse requirements.



	plasticisers: DOP, DDA, DINP	plasticisers: DBP	polymeric plasticisers	cosmetic esters	lubricant esters	tensidic esters	fatty acid esters	solvent esters	acrylic acid esters	
TIB KAT 129	●	○	○	●	●	●	●	○	○	fluid, easy dispensing possible
TIB KAT 160	●	○	●	●	●	●	●	○	○	high activity, easy removal possible, widely used
TIB KAT 188	●	○	○	●	●	●	●	○	○	high activity, easy removal possible
TIB KAT 220	●	○	●	○	●	○	●	○	○	fluid, very active catalyst
TIB KAT 248	●	○	●	○	●	●	●	○	○	widely used, remains dissolved in the ester
TIB KAT 256	●	○	●	○	●	●	●	○	○	high activity, remains dissolved in the ester
TIB KAT 634	○	○	○	●	●	●	●	○	○	tin-free catalyst, easy to remove
TIB KAT 635	○	○	○	●	●	●	●	○	○	tin-free catalyst, easy to remove
TIB KAT MSA	○	●	○	●	●	○	○	●	●	for low reaction temperatures
TIB KAT SP	○	●	○	●	●	○	●	●	●	for low reaction temperatures, good product colours, easy removal
TIB KAT HES	○	○	○	●	○	○	●	●	●	for medium to high reaction temperatures
TIB KAT S70	○	○	○	●	○	○	●	○	●	for medium to high reaction temperatures

ESTERIFICATION PRODUCTS

	tin-based inorganic catalysts	tin-based organic catalysts	zinc-based catalysts	titanates	sulphonic acids	metal soaps	
TIB Tinex S	●	○	●	●	○	●	Highly active filter aid

CATALYST
REMOVAL

	cosmetic esters	lubricant esters	tensidic esters	fatty acid esters	acrylic acid esters	
TIB KAT 229	●	○	○	●	●	octyltin-based fluid catalyst
TIB KAT 232	●	●	●	●	○	widely used octyltin-based catalyst with more favourable toxicological profile than TIB KAT 248
TIB KAT 233/233S	●	●	●	●	●	fluid catalyst, high yields, soluble in ester
TIB KAT 248	○	●	●	●	●	widely used, soluble in ester
TIB KAT 256	●	●	●	●	○	highly active catalyst, soluble in ester

TRANSESTERIFICATION
PRODUCTS

TIB KAT[®] as process additives

Plastics processing calls for considerable expertise and high-quality additives. The additives that go into many plastic compounds are indispensable ingredients – they serve to stabilise, colour or extend the properties of the polymers.

TIB Chemicals offers selected additives which are tailor-made to meet the special requirements of plastics processing. For producing thermoplastic vulcanisates, for example, we offer TIB Blend 98, a cross-linking catalyst based on tin(II)chloride which exhibits excellent flowability and a low tendency to clump. This translates into easy dispensing and problem-free operation of equipment.



	PVC	ABS, ABS/PVC blends	silane-terminated polymers	thermoplastic vulcanisates (TPM)	thermoplastic polyurethane	polylactides	glass coating	
TIB BLEND 98	○	○	○	●	○	○	○	cross-linking catalyst without tendency to clump and good dispensing capability
TIB KAT 129	○	○	○	○	○	●	○	polymerisation catalyst for dilactides or ring-opening polymerisation of lactones
TIB KAT 162	○	○	○	●	○	○	○	cross-linking catalyst for EPDM/PP/phenol resin systems
TIB KAT 214	●	○	○	○	○	○	○	octyltin mercaptide, excellent light and heat stability
TIB KAT 216	●	○	●	○	●	○	○	octyltin carboxylate, good light stability in PVC, cross-linking catalyst in silane-terminated polyolefins, low toxicity
TIB KAT 218	●	○	●	○	●	○	○	organotin carboxylate, good light stability in PVC, cross-linking catalyst in silane-terminated polyolefins
TIB KAT 220	○	○	○	○	○	●	○	catalyst for the transesterification of lactides
TIB KAT 616	●	○	○	○	○	○	○	zinc-based heat stabiliser for Ca/Zn-based stabiliser formulations
TIB KAT 620	●	○	○	○	○	○	○	zinc-based heat stabiliser for Ca/Zn-based stabiliser formulations
TIB KAT 716	○	○	○	○	●	○	○	catalyst with especially advantageous toxicology, good cross-linking properties
TIB KAT 720	○	○	○	○	●	○	○	Bi-based catalyst, low toxicity
TIB GLAS 100	○	○	○	○	○	○	●	hot annealing agent



TIB KAT[®] listing status

EU EINECS/ELINCS
USA TSCA
Canada DSL/NDSL
Australia AICS
Philippines PICCS
Japan ENCS/MITI
New Zealand ERMA
Korea ECL/TCCL
China NEPA/IECSC
Taiwan TCSI/CSNN

INORGANIC TIN CATALYSTS

TIB KAT 129	●	●	●	●	●	●	●	●	●	●
TIB KAT 160	●	●	●	●	○	●	●	●	●	●
TIB KAT 162	●	●	●	●	●	●	●	●	●	●
TIB KAT 188	●	●	●	●	●	●	●	●	●	●
TIB Blend 98	●	●	●	●	●	●	●	●	●	●
TIB KAT 152	●	●	●	●	●	●	●	●	●	●

ORGANOTIN CATALYSTS

TIB KAT 208	●	○	○	●	○	○	○	○	○	●
TIB KAT 214	●	●	●	●	○	●	○	●	●	●
TIB KAT 216	●	●	●	●	●	●	●	●	●	●
TIB KAT 217	●	●	●	●	●	●	○	●	●	●
TIB KAT 218	●	●	●	●	●	●	●	●	●	●
TIB KAT P 216	●	●	●	●	●	●	●	●	●	●
TIB KAT 220	●	●	●	●	●	●	●	●	●	●
TIB KAT 223	●	LVE	○	○	○	○	○	○	○	●
TIB KAT 226	●	●	●	●	●	●	●	●	●	●
TIB KAT 226 V80	●	●	●	●	●	●	●	●	●	●
TIB KAT 229	●	●	●	○	●	○	○	●	●	●
TIB KAT 232	●	●	●	●	●	●	○	●	●	●
TIB KAT 233	●	●	●	●	●	○	●	●	●	●
TIB KAT 233 S	●	●	●	●	○	●	●	●	●	●
TIB KAT 248	●	●	●	●	●	●	●	●	●	●
TIB KAT 248 LC	●	●	●	●	●	●	●	●	●	●
TIB KAT 250	●	●	●	●	○	○	●	●	●	●
TIB KAT 251	●	●	●	●	●	●	●	●	●	●
TIB KAT 256	●	●	●	●	●	●	●	●	●	●
TIB KAT 318	●	●	●	●	●	●	○	●	●	●
TIB KAT 320	●	●	●	●	●	●	●	●	●	●
TIB KAT 324	○	○	○	○	○	○	○	○	○	○
TIB KAT 405	●	●	●	●	●	●	●	●	●	●
TIB KAT 410	●	●	●	●	●	●	●	●	●	●
TIB KAT 417	●	●	●	●	●	●	○	●	●	●
TIB KAT 422	●	○	○	●	○	○	○	○	○	●
TIB KAT 423	●	●	●	●	●	●	●	●	●	●
TIB KAT 424	●	●	●	●	●	●	●	●	●	●
TIB KAT 425	●	●	●	●	●	●	○	●	●	●

EU EINECS/ELINCS
USA TSCA
Canada DSL/NDSL
Australia AICS

ZINC-BASED CATALYSTS

TIB KAT 616	●	●	●	●
TIB KAT 620	●	○	●	●
TIB KAT 623	●	●	●	●
TIB KAT 634	●	●	●	●
TIB KAT 635	●	●	●	●

BISMUTH-BASED CATALYSTS

TIB KAT 716	●	●	●	●
TIB KAT 716 LA	●	●	●	●
TIB KAT 716 XLA	●	●	●	●
TIB KAT 718	●	●	●	●
TIB KAT 720	●	●	●	●
TIB KAT 789	●	●	●	●
TIB KAT 721 E	○	○	○	○
TIB KAT 721 W	○	○	○	○

METAL CO-CATALYSTS & DRYERS

TIB KAT K15	●	●	●	●
TIB KAT K30	●	○	○	●
TIB KAT 804	●	●	●	●
TIB KAT 808	●	●	●	●
TIB KAT 812	●	●	●	●
TIB KAT 815	●	●	●	●
TIB KAT 816	●	●	●	●
TIB KAT 520	●	●	●	●
TIB KAT 508	●	●	●	●
TIB KAT 813	○	○	○	○
TIB KAT 851	●	●	●	○
TIB KAT 852	●	●	●	○

	Philippines PICCS	Japan ENCS/MITI	New Zealand ERMA	Korea ECL/TCCL	China NEPA/IECSC	Taiwan TCSI/CSNN
●	○	●	●	●	●	
●	●	●	●	●	●	
●	●	●	●	●	●	
○	○	○	●	○	●	
●	●	●	●	●	●	
●	○	●	●	●	●	
●	○	●	●	●	●	
●	○	●	●	●	●	
●	●	●	●	●	●	
○	○	○	○	○	○	
○	○	○	○	○	○	
●	●	●	●	●	●	
●	○	○	●	●	●	
●	●	○	○	●	●	
●	●	●	●	●	●	
●	●	●	●	●	●	
●	●	●	●	●	●	
●	●	○	●	●	●	
●	●	○	●	●	●	
○	○	○	○	○	○	
○	●	○	○	○	●	
○	○	●	○	○	●	

	EU EINECS/ELINCS	USA TSCA	Canada DSL/NDSL	Australia AICS	Philippines PICCS	Japan ENCS/MITI	New Zealand ERMA	Korea ECL/TCCL	China NEPA/IECSC	Taiwan TCSI/CSNN
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SULPHONIC ACID CATALYSTS

TIB KAT MSA 70	●	●	●	●	●	●	●	●	●	●
TIB KAT MSA 99	●	●	●	●	●	●	●	●	●	●
TIB KAT SP	●	●	●	●	●	●	●	●	●	●
TIB KAT MP	●	●	●	●	●	●	●	●	●	●
TIB KAT HES 70	●	●	●	○	●	●	○	●	●	●
TIB KAT SSSA	●	●	●	○	○	●	○	○	○	○
TIB KAT S40	●	●	●	○	●	●	●	●	●	●
TIB KAT S70	●	●	●	○	●	●	●	●	●	●

FILTERING AID – ADSORPTION MATERIAL

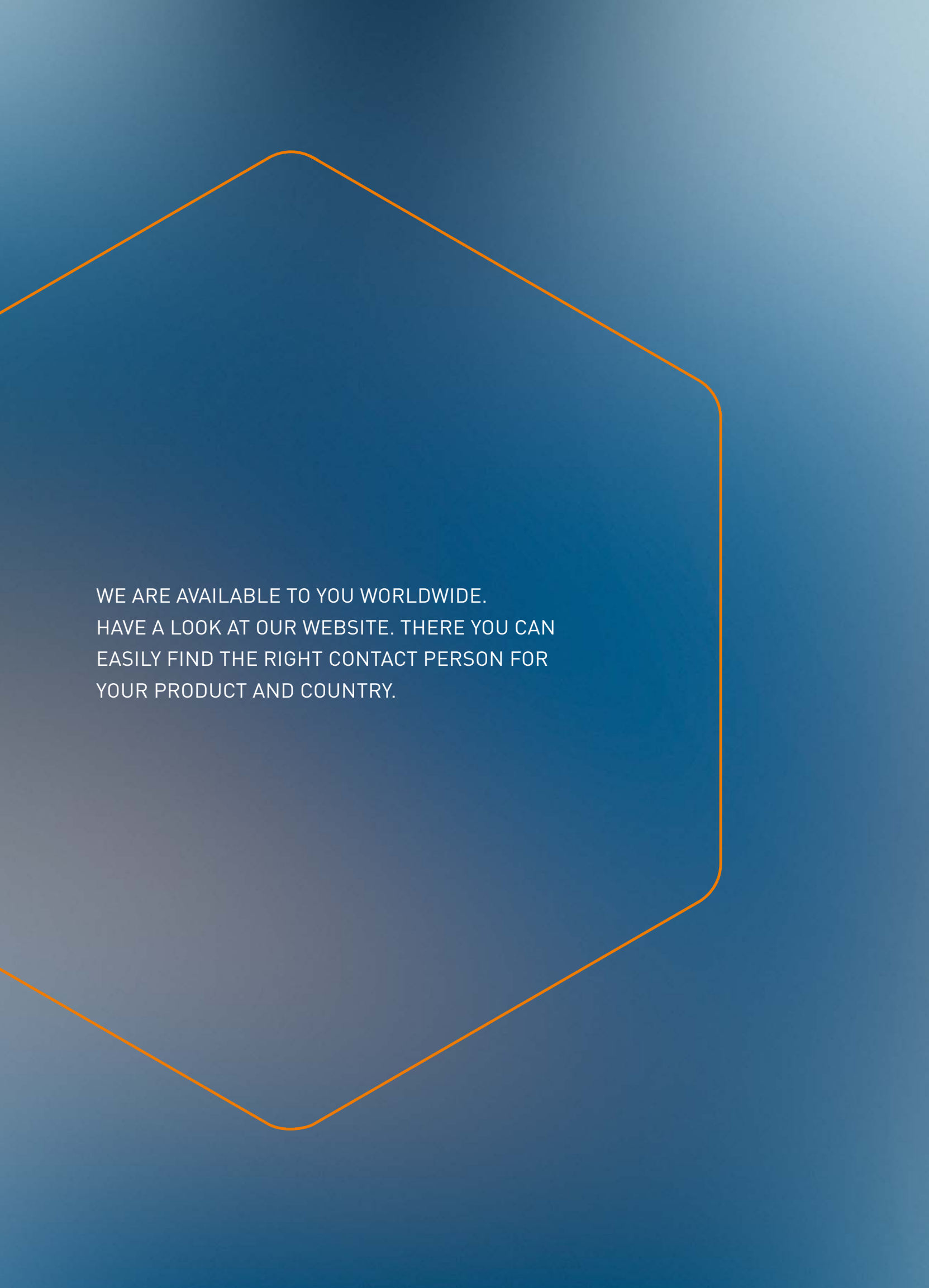
TIB Tinex S	○	●	○	○	○	○	○	○	○	○
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PROCESS ADDITIVES

TIB A0A 2	●	●	●	●	●	●	●	●	●	●
TIB STAB 115	●	●	●	●	●	●	●	●	●	●
TIB STAB 142	●	●	●	●	○	○	○	●	●	●
TIB SnCl ₄	●	●	●	●	●	●	●	●	●	●
TIB SnCl ₂ 41	●	●	●	●	●	●	●	●	●	●
TIB SnCl ₂ 50	●	●	●	●	●	●	●	●	●	●
TIB SnF ₂	●	●	●	●	●	●	○	●	○	●
TIB TBTCI	●	●	●	●	●	●	●	●	●	●

TIB GLAS

TIB GLAS 100	●	●	●	●	●	●	●	●	●	●
TIB GLAS 210	●	●	●	●	●	●	●	●	●	●
TIB Finish GL08	●	●	●	●	●	●	●	●	●	●



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