



BASIC CHEMICALS | INORGANIC SPECIALTY CHEMICALS | COATING SYSTEMS

CATALYSTS | the decisive Plus



❖ LEADERS IN QUALITY AND SERVICE

TIB Chemicals was born following the merger of Goldschmidt TIB of Germany and Goldschmidt Química de México. The nickel chemicals specialist Königswarter & Ebell joined the TIB Chemicals Group in 2010. The company is a leading international supplier of a wide range of basic chemicals, innovative inorganic specialty chemicals and high-performance coating systems.

The largest production facilities are located in Mannheim and Hagen, Germany and San Luis Potosí, México. Our sales and distribution organisation operates worldwide. TIB Chemicals employs about 350 highly qualified staff who draw on more than 130 years of experience and expertise. Each year they produce and process more than 400,000 tonnes of chemicals and generate revenues of over 120 million euros.

For years, the growth of TIB Chemicals has outpaced the industry average. Our success is based on the high-quality products and tailor-made solutions we develop for our customers, backed by a flexible logistics service. We are committed to supporting our customers and helping them to achieve the business success.

The company is divided into three business units: Basic Chemicals, Inorganic Specialty Chemicals and Coating Systems. All three act flexibly and quickly to meet our customers' wishes and needs. Together they form a strong unit with the strong financial base and logistical and organisational structure of a large corporation.

❖ THE THREE BUSINESS UNITS OF TIB CHEMICALS

BASIC CHEMICALS

These products include acids and zinc- and sulphur-based chemicals for chemical companies, the metalworking industry, hot-dip galvanising, electroplating, the textile and plastics industries, water treatment and production of foods and beverages.

INORGANIC SPECIALTY CHEMICALS

Based on the elements tin, zinc, copper, nickel and bismuth, these special chemicals are used for electroplating in the electronics and metalworking industries, as copper compounds in the automotive and chemical industries, as catalysts for producing resins, coatings and paints, and as chromate reducers for building materials.

COATING SYSTEMS

Polyurethane- and epoxy-based coating systems to prevent corrosion of pipelines and valves, water treatment facilities and power plants. Thermal Curing Systems, such as hot dip coatings for electroplating and tool manufacturing, as well as stoving varnishes for the packaging industry. Bitumen Specialties for use in building construction, civil engineering and road paving.

TIB CHEMICALS



Our **catalysts** are presented on the following pages.



⚡ TIB KAT® – THE TRADEMARK FOR 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 and meet our customers' requirements in every case, TIB constantly works to enhance its tailor-made solutions. 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 the partner of choice for developing catalysts to meet your special wishes and adapting them to meet your changing requirements.

⚡ TIB® CATALYSTS AND THEIR CHEMISTRY

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

1. ESTERISATION



2. TRANSESTERISATION / POLYCONDENSATION



3. URETHANE FORMATION



4. CONDENSATION OF SILANES / SILICONES



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.

The catalysts listed on the following pages include a wide range of Lewis acids of different strengths. They let you find the one with the most appropriate activity for a given reaction profile.



🔗 TIB KAT® – THE RIGHT SOLUTION FOR EVERY REQUIREMENT

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

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 superbly qualify us to support you, as our customer, in developing new applications of your own.

INORGANIC TIN CATALYSTS

| | |
|---------------|---|
| TIB KAT 129 | Stannous octoate |
| TIB KAT P 129 | TK 129 plasticiser blend |
| TIB KAT 160 | Stannous oxalate |
| TIB KAT 162 | Stannous chloride, anhydrous |
| TIB KAT 188 | Stannous oxide |
| TIB Blend 98 | SnCl ₂ dihydrate on silica vehicle |

ORGANOTIN CATALYSTS

| | |
|-----------------|---|
| TIB KAT 208 | Diocetyl tin di-(2-ethylhexanoate) sol. |
| TIB KAT 214 | Diocetyl tin dithioglycolate |
| TIB KAT 216 | Diocetyl tin dilaurate (DOTL) |
| TIB KAT 217 | Diocetyl tin oxide blend |
| TIB KAT 218 | Dibutyl tin dilaurate (DBTL) |
| TIB KAT P 218 | DBTL-plasticiser blend |
| TIB KAT 220 | Monobutyl tin tris-(2-ethylhexanoate) |
| TIB KAT 223 | Diocetyl tin dineodecanoate |
| TIB KAT 226 | Dibutyl tin dineodecanoate |
| TIB KAT 226 V80 | TK 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 | Modified dibutyl tin diacetate (DBTA) |
| TIB KAT 248 | Dibutyl tin oxide (DBTO) |
| TIB KAT 248 LC | Dibutyl tin oxide, special (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 carboxylate |
| 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 | Diocetyl tin oxide blend |
| TIB KAT 422 | Diocetyl tin-silane blend |
| TIB KAT 423 | Diocetyl tin-silane blend |
| TIB KAT 424 | TIB KAT 248-plasticiser blend |

MONOMERS & ADDITIVES

| | |
|-----------------|--------------------------------------|
| TIB A0A / A0A 2 | Antioxidant |
| TIB Si 2000 | OH-fct., activ. polydimethylsiloxane |
| TIB Sn52 | Lubricant additive |

BISMUTH - BASED CATALYSTS

| | |
|-----------------|---------------------------|
| TIB KAT 716 | Bismuth carboxylate |
| TIB KAT 716 LA | Bismuth carboxylate |
| TIB KAT 716 XLA | Bismuth carboxylate |
| TIB KAT 718 | Modified bismuth catalyst |
| TIB KAT 720 | Bismuth carboxylate |
| TIB KAT 789 | Bismuth oxide |

SULPHONIC ACID CATALYSTS

| | |
|----------------|--------------------------------|
| TIB KAT MSA 70 | Methanesulphonic acid 70 % |
| TIB KAT MSA 99 | Methanesulphonic acid 99 % |
| TIB KAT SP | Modified methanesulphonic acid |
| TIB KAT MP | Blocked methanesulphonic acid |
| TIB KAT HES 70 | Hydroxyethanic acid 70 % |
| TIB KAT SSSA | Na-sulposuccinate |
| TIB KAT S40 | Sulphosuccinic acid 40 % |
| TIB KAT S70 | Sulphosuccinic acid 70 % |

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 |

METAL CO - CATALYSTS & DRYERS

| | |
|-------------|-------------------------|
| TIB KAT K15 | Potassium octoate / DEG |
| TIB KAT 804 | Copper oleate |
| TIB KAT 808 | Copper naphthenate |
| TIB KAT 812 | Cer octoate |
| TIB KAT 815 | Iron acetylacetonate |
| TIB KAT 816 | Zirconium octoate |

FILTERING AIDS & ADSORPTION MATERIALS

| | |
|-------------|----------------------------------|
| TIB Tinex P | Natural aluminosilicate |
| TIB Tinex T | Synthetic amorphous silicic acid |



🔗 TIB KAT® FOR OLEOCHEMISTRY

Sustainability: oleochemicals are closely tied to this concept. These chemicals based on renewable raw materials are playing an increasingly important role in our lives today.

The quality of oleochemical esters is greatly influenced by the TIB KAT® catalysts used to produce them. Our organotin-based catalysts as well as tin- and zinc-based inorganic and sulphonic acid catalysts are widely used for transesterification.

TIB KAT® catalysts let you achieve especially high reaction activity and yields. The resulting products contain extremely low by-product concentrations and are visually very attractive.

| | Plasticisers: DOP, DDA, DINP | Plasticisers: DBP | Polymeric plasticisers | Cosmetic esters | Lubricant esters | Ester surfactants | Fatty acid esters | Solvent esters | Acrylic acid esters | |
|-------------|---------------------------------|-------------------|------------------------|-----------------|------------------|-------------------|-------------------|----------------|---------------------|---|
| | ESTERISATION PRODUCTS | | | | | | | | | |
| TIB KAT 129 | ● | ○ | ○ | ● | ● | ● | ● | ○ | ○ | Liquid, easy dosing |
| TIB KAT 160 | ● | ○ | ● | ● | ● | ● | ● | ○ | ○ | High activity, easy to remove, wide range of uses |
| TIB KAT 188 | ● | ○ | ○ | ● | ● | ● | ● | ○ | ○ | High activity, easy to remove |
| TIB KAT 220 | ● | ○ | ● | ○ | ● | ○ | ● | ○ | ○ | Liquid, very active catalyst |
| TIB KAT 248 | ● | ○ | ● | ○ | ● | ● | ● | ○ | ○ | Wide range of uses, remains dissolved in ester |
| TIB KAT 256 | ● | ○ | ● | ○ | ● | ● | ● | ○ | ○ | High activity, remains dissolved in 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 final product colours, easy to remove |
| TIB KAT HES | ○ | ○ | ○ | ● | ○ | ○ | ● | ● | ● | For moderate to high reaction temperatures |
| TIB KAT S70 | ○ | ○ | ○ | ● | ○ | ○ | ● | ○ | ● | For moderate to high reaction temperatures |

| | Cosmetic esters | Lubricant esters | Ester surfactants | Fatty acid esters | Acrylic acid esters | |
|---------------------|-----------------------------------|------------------|-------------------|-------------------|---------------------|--|
| | TRANSESTERISATION PRODUCTS | | | | | |
| TIB KAT 229 | ● | ○ | ○ | ● | ● | Liquid catalyst based on octyltin |
| TIB KAT 232 | ● | ● | ● | ● | ○ | Octyltin-based catalyst with wide range of uses, with more favourable toxicological profile than TIB KAT 248 |
| TIB KAT 233 / 233 S | ● | ● | ● | ● | ● | Liquid catalyst, highly active, soluble in ester |
| TIB KAT 248 | ○ | ● | ● | ● | ● | Wide range of uses, soluble in ester |
| TIB KAT 256 | ● | ● | ● | ● | ○ | Highly active catalyst, soluble in ester |

| | Inorganic zinc catalysts | Organotin catalysts | Zinc catalysts | Titanates | Sulphonic acids | Metal soaps | |
|---------|--------------------------|---------------------|----------------|-----------|-----------------|-------------|--|
| | CATALYST REMOVAL | | | | | | |
| TINEX T | ● | ○ | ● | ○ | ○ | ● | Usable at up to 120 °C |
| TINEX P | ● | ○ | ● | ● | ○ | ● | Versatile use at up to 120 °C for medium- and low-viscosity esters, can be activated with water or phosphoric acid |



🔗 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 KAT® 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 | Polyester resins | Polyester polyols | Polycaprolactones | Polycarbonates | Poly lactides | PET glycolysis | |
|-------------------------|-----------------------------|------------------|-------------------|-------------------|----------------|---------------|----------------|---|
| POLYESTER RESINS | | | | | | | | |
| TIB KAT 129 | ● | ○ | ○ | ● | ○ | ● | ○ | Liquid catalyst, high esterisation activity |
| TIB KAT 160 | ○ | ● | ○ | ○ | ○ | ○ | ○ | High activity |
| TIB KAT 162 | ○ | ○ | ● | ○ | ○ | ○ | ○ | Lower residual polyol activity than with isocyanates |
| TIB KAT 220 | ● | ● | ○ | ○ | ○ | ○ | ○ | Liquid catalyst, very active |
| TIB KAT 232 | ● | ● | ○ | ○ | ○ | ○ | ○ | Low toxicity |
| TIB KAT 248 / 248 LC | ● | ● | ○ | ○ | ● | ○ | ○ | Wide range of uses, suitable for polyesters with low and medium molecular weights |
| TIB KAT 250 | ● | ● | ○ | ○ | ○ | ○ | ○ | Low start temperatures (160 °C), high activity |
| TIB KAT 256 | ● | ● | ○ | ○ | ○ | ○ | ● | Extremely efficient catalyst, especially for polyesters with low and medium molecular weights |
| TIB KAT 634 | ○ | ○ | ○ | ○ | ○ | ○ | ● | Particularly cost-effective |
| TIB KAT 635 | ● | ● | ● | ○ | ○ | ○ | ● | Tin-free catalyst, soluble in ester |

| | Short-oil alkyds | Medium-oil alkyds | Long-oil alkyds | Urethane-modified alkyds | Silicone-modified alkyds | Water-reducible alkyd resins | |
|----------------------|------------------|-------------------|-----------------|--------------------------|--------------------------|------------------------------|---|
| ALKYD RESINS | | | | | | | |
| TIB KAT 129 | ○ | ○ | ○ | ● | ○ | ○ | High activity for esterisation and urethanisation |
| TIB KAT 216 | ● | ● | ● | ● | ● | ○ | Wide range of uses, low toxicity |
| TIB KAT 218 | ● | ● | ● | ● | ● | ○ | Liquid, wide range of uses |
| TIB KAT 248 / 248 LC | ● | ● | ● | ● | ● | ● | Wide range of uses, causes only minimal turbidity with soy oils |
| TIB KAT 250 | ● | ● | ○ | ○ | ○ | ○ | Very good substitute for lead oxide |
| TIB KAT 251 | ● | ● | ○ | ○ | ● | ● | Does not change drying times of air-drying alkyds |
| TIB KAT 256 | ● | ● | ○ | ○ | ● | ● | Very good substitute for lead oxide, excellent for IPA- and TA-based formulations |
| TIB KAT 616 | ○ | ○ | ○ | ● | ○ | ○ | Tin-free alternative for urethanisation |
| TIB KAT 635 | ○ | ● | ● | ○ | ○ | ○ | Good colours, especially with medium- and long-oil alkyds |
| TIB KAT 716 | ○ | ○ | ○ | ● | ○ | ○ | Tin-free alternative for urethanisation |

| | Polyester synthesis, two-stage process | Polyester synthesis, single-stage process | Polymerisation catalyst | Stabiliser, polymerisation regulator | |
|-------------------------------|--|---|-------------------------|--------------------------------------|--|
| UNSATURATED POLYESTERS | | | | | |
| TIB KAT 129 | ○ | ● | ○ | ○ | High esterisation activity |
| TIB KAT 248 / 248 LC | ● | ● | ○ | ○ | Wide range of uses |
| TIB KAT 250 | ● | ● | ○ | ○ | Very effective for IPA-based formulations |
| TIB KAT 256 | ● | ● | ○ | ○ | Very effective for IPA-based formulations |
| TIB KAT K15 | ○ | ○ | ● | ○ | Substitute for cobalt octoate, enables low colour values |
| TIB KAT 804 | ○ | ○ | ○ | ● | Very good stabiliser, effective in low concentrations |
| TIB KAT 808 | ○ | ○ | ○ | ● | Very good stabiliser, effective in low concentrations |

| | Polyesters | Alkyd resins | Formulations | |
|---------------------------------|------------|--------------|--------------|--|
| MONOMERS & ADDITIVES | | | | |
| TIB AOA / AOA 2 | ● | ● | ○ | Antioxidant for polyesters / alkyd resin synthesis |
| TIB KAT SSSA | ● | ● | ○ | Monomer for alkyd and polyester resins, no amines required |
| TIB Si 2000 | ● | ● | ● | Activated polyol for making silicone-modified resins |



❖❖ TIB KAT® FOR PAINTS AND COATINGS

Modern paints and coatings have to meet diverse requirements – and so do the catalysts used to produce them.

Automotive paints have to satisfy enormous aesthetic demands. And both they and the paints used on buildings and for industrial applications need to be weather- and UV-resistant. Long life is essential, as is the ability to withstand heat, cold, ice and snow.

As the expectations that these products have to meet have increased, so have the requirements for catalysts. The utilisation and curing times of paints and coatings are determined by the catalysts used to make them. The TIB KAT® types meet these requirements, in addition to providing other benefits. For example, the TIB KAT® range includes not only high-quality zinc-based catalysts, but also newly developed bismuth- and zinc-based catalysts which have a lower toxicological potential, thus making them suitable for a wider spectrum of applications.

| | Blocked PU powder coatings | Urethane-blocked PU powder coatings | Silicone powder coatings | | | | | |
|---------------------------|----------------------------|-------------------------------------|--------------------------|--|-------------|--------------------------|----------------|--|
| POWDER COATINGS | | | | | | | | |
| TIB KAT P 129 | ● | ○ | ○ | TIB KAT 129 on special silica vehicle | | | | |
| TIB KAT P 216 | ● | ○ | ○ | Low toxicity, TIB KAT P 218 on special silica vehicle | | | | |
| TIB KAT P 218 | ● | ○ | ○ | TIB KAT 281 on special silica vehicle | | | | |
| TIB KAT 623 | ● | ● | ● | Tin-free catalyst, reduces crosslinking temperatures | | | | |
| | Air-drying alkyd resins | UPE | | | | | | |
| DRYERS / ADDITIVES | | | | | | | | |
| TIB KAT 616 / 620 | ● | ○ | | Improves drying | | | | |
| TIB KAT 808 | ○ | ● | | Excellent stabilizer, also effective in low concentrations | | | | |
| TIB KAT 812 | ● | ○ | | Especially suited for lower temperatures and high ambient humidity | | | | |
| TIB KAT 816 | ● | ○ | | The foremost lead substitute | | | | |
| | PU prepolymers | 1K/2K PU solvent-containing systems | PU high solids | 2K water-borne PU systems | Isocyanates | Electrophoretic coatings | PU dispersions | |
| POLYURETHANE | | | | | | | | |
| TIB KAT 129 | ● | ● | ● | ○ | ○ | ○ | ○ | High activity |
| TIB KAT 214 | ○ | ● | ○ | ○ | ○ | ○ | ○ | Low toxicity, long pot life |
| TIB KAT 216 | ● | ● | ● | ● | ○ | ○ | ● | Low toxicity, standard catalyst |
| TIB KAT 218 | ● | ● | ● | ● | ○ | ○ | ● | Wide range of uses |
| TIB KAT 220 | ○ | ● | ● | ○ | ○ | ○ | ○ | Long pot life, recommended for forced drying |
| TIB KAT 233 | ○ | ● | ● | ○ | ○ | ○ | ○ | Very fast-acting catalyst |
| TIB KAT 248 LC | ○ | ○ | ○ | ○ | ○ | ● | ○ | Standard catalyst |
| TIB KAT 318 | ● | ● | ○ | ○ | ○ | ○ | ○ | Low toxicity, improved shelf life |
| TIB KAT 616 | ● | ● | ○ | ○ | ○ | ○ | ○ | Long pot life, recommended for forced drying |
| TIB KAT 620 | ● | ○ | ○ | ○ | ○ | ○ | ○ | Standard type, for long processing and drying times |
| TIB KAT 716 / 716 LA | ● | ● | ● | ○ | ○ | ○ | ○ | High activity, improved shelf life and colourfastness, alternative to DBTL |
| TIB KAT 718 | ● | ● | ● | ○ | ○ | ○ | ○ | Catalyst blend, recommended for aromatic systems |
| TIB KAT 720 | ● | ● | ● | ○ | ○ | ○ | ○ | Standard catalyst, good for elastomer systems |
| TIB KAT 815 | ○ | ● | ○ | ○ | ○ | ○ | ○ | Only for systems in which colour plays no role |
| TIB KAT K15 | ○ | ○ | ○ | ○ | ● | ○ | ○ | Standard trimerisation catalyst |



🔗 TIB KAT® FOR ADHESIVES AND SEALANTS

Modern adhesives and sealants are now indispensable in a vast range of applications spanning nearly all sectors of industry. Long ago they began replacing screws, bolts, rivets and other mechanical fasteners for a multitude of uses.

Adhesives and sealants are employed in automotive manufacturing and the aerospace industry, as well as in building construction and shipbuilding. They need to be flexible and easy to apply, and have to provide lasting protection against environmental conditions.

We have developed and optimised special TIB KAT® types for a wide spectrum of applications. They decisively improve the usability and other attributes of adhesives and sealants.

Supplementing the widely used standard catalysts, TIB has developed corresponding dioctyltin catalysts with reduced toxicity. For MS- and silane-terminated polymers, we offer special silane blends which meet the demanding requirements of these modern systems.

SILICONES & SILANE - MODIFIED POLYMERS

| | 1K MS silyl | 2K MS silyl | Silicone resins | Silane-modified polyolefines (XPE) | Silane-terminated polymers | |
|---------------------|-------------|-------------|-----------------|------------------------------------|----------------------------|--|
| TIB KAT 129 | ● | ○ | ○ | ○ | ○ | Slow crosslinking catalyst |
| TIB KAT 216 | ○ | ○ | ○ | ● | ● | Low toxicity, standard catalyst for XPE tubing and pipes |
| TIB KAT 217 | ● | ○ | ○ | ○ | ○ | Enables low adhesion values, slow catalyst for MS silyl systems |
| TIB KAT 218 | ○ | ○ | ● | ● | ● | Multipurpose catalyst |
| TIB KAT 223 | ● | ○ | ○ | ○ | ○ | Low toxicity, excellent for 1K MS silyl |
| TIB KAT 324 | ○ | ● | ● | ● | ○ | Greater activity than DBTL |
| TIB KAT 226 | ● | ○ | ○ | ○ | ○ | Very fast-acting catalyst, excellent for 1 K MS silyl formulations |
| TIB KAT 226 V80 | ● | ○ | ○ | ○ | ○ | Remains liquid at lower processing temperatures for 1 K MS silyl |
| TIB KAT 229 | ○ | ○ | ● | ○ | ● | Low toxicity, DOT alternative to TIB KAT 233 |
| TIB KAT 233 / 233 S | ○ | ○ | ● | ○ | ● | Greater activity than DBTL |
| TIB KAT 417 | ● | ○ | ○ | ○ | ○ | Enables low adhesion values, faster than TIB KAT 217 |

POLYURETHANES

| | PU adhesives and sealants | PU hot melts | PU cast resin systems | PU flooring | PU elastomers | |
|----------------------|---------------------------|--------------|-----------------------|-------------|---------------|--|
| TIB KAT 129 | ● | ○ | ○ | ○ | ○ | Organotin-free catalyst |
| TIB KAT 214 | ● | ○ | ○ | ● | ○ | Low toxicity, especially suited for flooring systems |
| TIB KAT 216 | ● | ● | ● | ○ | ○ | Low toxicity, standard catalyst |
| TIB KAT 218 | ● | ● | ● | ● | ○ | Multipurpose catalyst |
| TIB KAT 220 | ○ | ○ | ○ | ○ | ● | Monobutyltin-based catalyst |
| TIB KAT 229 | ● | ○ | ● | ○ | ○ | Low toxicity, DOT alternative to TIB KAT 233 |
| TIB KAT 233 | ● | ○ | ● | ○ | ○ | Very fast-acting catalyst |
| TIB KAT 318 | ● | ● | ● | ○ | ○ | Low toxicity, improved shelf life |
| TIB KAT 320 | ● | ○ | ○ | ○ | ○ | Improved shelf life |
| TIB KAT 616 | ● | ○ | ● | ● | ○ | Tin-based alternative to DBTL |
| TIB KAT 716 / 716 LA | ● | ○ | ● | ● | ● | Bismuth-based alternative to DBTL |
| TIB KAT 718 | ● | ○ | ● | ● | ● | Tin-free catalyst |
| TIB KAT 720 | ● | ○ | ● | ● | ○ | Bismuth-based alternative to DBTL |

RTV SILICONES

| | RTV sealants, acetoxy curing | RTV sealants, oxime curing | RTV sealants, alkoxy curing | Cast resin systems | |
|-------------|------------------------------|----------------------------|-----------------------------|--------------------|--|
| TIB KAT 129 | ● | ○ | ○ | ● | Very fast-acting catalyst |
| TIB KAT 216 | ● | ○ | ○ | ● | Low toxicity |
| TIB KAT 217 | ○ | ● | ● | ○ | Standard catalyst for oxime- and alkoxy-curing RTV systems |
| TIB KAT 218 | ● | ● | ○ | ● | Multipurpose catalyst |
| TIB KAT 229 | ● | ● | ○ | ● | DOT version of TIB KAT 233 |
| TIB KAT 233 | ● | ● | ○ | ● | Very fast-acting catalyst |
| TIB KAT 320 | ● | ● | ○ | ● | Improved shelf life |
| TIB KAT 324 | ● | ● | ○ | ● | Greater activity than TIB KAT 216 |
| TIB KAT 405 | ○ | ○ | ○ | ● | Catalyst-silane blend |
| TIB KAT 410 | ○ | ● | ● | ○ | Catalyst-plasticiser blend |
| TIB KAT 417 | ○ | ● | ● | ○ | Greater activity than TIB KAT 217 |



❖❖ TIB KAT® FOR POLYMER PROCESSING

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 offers selected additives which are tailor-made to meet the special requirements of plastics processing. For producing thermoplastic vulcanisates, 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 production equipment.

| | PVC | ABS, ABS / PVC blends | Silane-terminated polymers | Thermoplastic vulcanisates (TPV) | Thermoplastic polyurethanes | Polyactides | Other polymers | |
|---------------------|-----|-----------------------|----------------------------|----------------------------------|-----------------------------|-------------|----------------|---|
| | | | | | | | | POLYMER PROCESSING |
| TIB BLEND 98 | ○ | ○ | ○ | ● | ○ | ○ | ○ | Crosslinking catalyst as free-flowing, nonclumping powder which is easy to dose |
| TIB KAT 129 | ○ | ○ | ○ | ○ | ○ | ● | ○ | Polymerisation catalyst for delactides or ring-opening polymerisation of lactones |
| TIB KAT 162 | ○ | ○ | ○ | ● | ○ | ○ | ○ | Crosslinking catalyst for EPDM / PP / phenolic resin systems |
| TIB KAT 214 | ● | ○ | ○ | ○ | ○ | ○ | ○ | Octyltin mercaptide, excellent stability when exposed to light and heat |
| TIB KAT 216 | ● | ○ | ● | ○ | ● | ○ | ○ | Organotin carboxylate, good light stability in PVC, excellent crosslinking catalyst in silane-terminated polyolifines, low toxicity |
| TIB KAT 218 | ● | ○ | ● | ○ | ● | ○ | ○ | Organotin carboxylate, good light stability in PVC, excellent crosslinking catalyst in silane-terminated polyolifines |
| TIB KAT 220 | ○ | ○ | ○ | ○ | ○ | ● | ○ | Catalyst for transesterisation of lactides |
| TIB KAT 616 | ● | ○ | ○ | ○ | ○ | ○ | ○ | Zinc-based heat stabilizer for Ca- and Zn-based stabiliser formulations |
| TIB KAT 620 | ● | ○ | ○ | ○ | ○ | ○ | ○ | Zinc-based heat stabilizer for Ca- and Zn-based stabiliser formulations |
| TIB KAT 716 | ○ | ○ | ○ | ○ | ● | ○ | ○ | Especially favourable toxicology, good crosslinking properties |
| TIB KAT 720 | ○ | ○ | ○ | ○ | ● | ○ | ○ | Bismuth-based catalyst, low toxicity |



📍 TIB KAT® – GLOBAL PRESENCE



🔗 TIB KAT® – REGULATORY STATUS

EU
EINECS / ELINGS
USA
TSCA
Canada
DSL / NDSL
Australien
AICS
Philippines
PICCS
Japan
ENCS / MITI
New Zealand
ERMA
South Korea
ECL / TCCL
China
NEPA / IECSC

INORGANIC TIN CATALYSTS

| | | | | | | | | | |
|---------------|---|---|---|---|---|---|---|---|---|
| TIB KAT 129 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT P 129 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 160 | ● | ● | ● | ● | ○ | ● | ● | ● | ● |
| TIB KAT 162 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 188 | ● | ● | ● | ● | ● | ● | ● | ● | ● |

EU
EINECS / ELINGS
USA
TSCA
Canada
DSL / NDSL
Australien
AICS
Philippines
PICCS
Japan
ENCS / MITI
New Zealand
ERMA
South Korea
ECL / TCCL
China
NEPA / IECSC

ORGANOTIN CATALYSTS

| | | | | | | | | | |
|-----------------|---|---|---|---|---|---|---|---|---|
| TIB KAT 208 | ● | ○ | ○ | ● | ○ | ● | ● | ○ | ○ |
| TIB KAT 214 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 216 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 217 | ● | ● | ● | ● | ● | ● | ○ | ● | ● |
| TIB KAT 218 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT P 218 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 220 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 223 | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| 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 | ● | ● | ● | ● | ● | ● | ● | ● | ● |

EU
EINECS / ELINGS
USA
TSCA
Canada
DSL / NDSL
Australien
AICS
Philippines
PICCS
Japan
ENCS / MITI
New Zealand
ERMA
South Korea
ECL / TCCL
China
NEPA / IECSC

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 | ● | ● | ● | ● | ● | ● | ● | ● | ● |

METAL CO - CATALYSTS & DRYERS

| | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|
| TIB KAT K15 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 804 | ○ | ○ | ○ | ● | ● | ○ | ○ | ● | ● |
| TIB KAT 808 | ● | ● | ● | ● | ● | ○ | ● | ● | ● |
| TIB KAT 812 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 815 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT 816 | ● | ● | ● | ● | ○ | ● | ● | ● | ● |

EU
EINECS / ELINGS
USA
TSCA
Canada
DSL / NDSL
Australien
AICS
Philippines
PICCS
Japan
ENCS / MITI
New Zealand
ERMA
South Korea
ECL / TCCL
China
NEPA / IECSC

SULPHONIC ACID CATALYSTS

| | | | | | | | | | |
|--------------|---|---|---|---|---|---|---|---|---|
| TIB KAT MSA | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT SP | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT MP | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB KAT HES | ● | ● | ● | ○ | ● | ● | ● | ● | ● |
| TIB KAT SSSA | ● | ● | ● | ○ | ○ | ● | ● | ○ | ○ |
| TIB KAT S40 | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| TIB KAT S70 | ● | ● | ● | ○ | ● | ● | ● | ● | ● |

FILTERING AIDS & ADSORPTION MATERIALS

| | | | | | | | | | |
|-------------|---|---|---|---|---|---|---|---|---|
| TIB Tinex P | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| TIB Tinex T | ● | ● | ● | ● | ● | ● | ● | ● | ● |

MONOMERS & ADDITIVES

| | | | | | | | | | |
|----------|---|---|---|---|---|---|---|---|---|
| TIB A0A | ○ | ○ | ○ | ● | ● | ○ | ● | ○ | ● |
| TIB A0A2 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| TIB SnS2 | ● | ● | ● | ○ | ○ | ● | ● | ● | ● |



:: GERMANY

TIB Chemicals AG
Mülheimer Strasse 16 – 22
68219 Mannheim
P.O. Box 81 02 20
68202 Mannheim
Tel. +49 621 8901 0
Fax +49 621 8901 900
info@tib-chemicals.com
www.tib-chemicals.com

Dr. Dieter Guhl
Head of Inorganic Specialty Chemicals
Tel. +49 621 8901 404
Fax +49 621 8901 1404
Mobile +49 171 371 77 69
dieter.guhl@tib-chemicals.com

Claus-Christoph Spies
Head of Catalysts
Tel. +49 621 8901 399
Fax +49 621 8901 1399
Mobile +49 162 293 95 20
claus-christoph.spies@tib-chemicals.com

Dr. Udo Kittelmann
Senior Marketing Manager
Tel. +49 621 8901 409
Fax +49 621 8901 1409
udo.kittelmann@tib-chemicals.com

Petra Trumpler
Customer Service / Order Processing
Tel. +49 621 8901 811
Fax +49 621 8901 475
petra.trumpler@tib-chemicals.com

Petra Stoll
Customer Service / Order Processing
Tel. +49 621 8901 277
Fax +49 621 8901 475
petra.stoll@tib-chemicals.com

Judith Amiras
Customer Service / Order Processing
France / Italy
Tel. +49 621 8901 371
Fax +49 621 8901 475
judith.amiras@tib-chemicals.com

Dr. Frank Lehmann
Head of Research & Development
Tel. +49 621 8901 401
Fax +49 621 8901 1401
frank.lehmann@tib-chemicals.com

:: EUROPE

Benelux
Gilbert Tas
Tel. +32 543 344 85
Fax +32 543 308 54
gilbert.tas@evonik.com

Dr. Klaus Ströhle
Tel. +44 182 731 41 51
Fax +44 182 731 41 52
klaus@l-i.co.uk
www.l-i.co.uk

Finland
OY Flinkenberg AB
Mikkellänkalio 3
FIN - 02771 Espoo

Veli Laamanen
Tel. +358 985 991 344
Fax +358 859 913 04
veli.laamanen@flinkenberg.fi

France
TIB Chemicals AG
Hervé Luneau
Tel. +33 130 620 007
herve.luneau@tib-chemicals.com

United Kingdom
Lawrence Industries
PO Box 3000
Tamworth, Staffordshire B 79 7XJ
Great Britain

Italy / Spain / Switzerland / Greece
TIB Chemicals AG
Fabrizio Scesa
Tel. +39 037 39 75 - 224 / -213
Fax +39 037 39 75 - 260
Mobile +39 348 254 18 50
fabrizio.scesa@evonik.com

Norway / Sweden / Denmark
Eidsvik Agentur Ltd
Rødtvedveien 16
0955 Oslo
Norwegen

Arne Eidsvik
Tel. +47 - 944 983 46
Fax +47 - 220 656 99
e.agent@online.no

Poland
Donauchem Polska Sp. Z.o.o.
Ul. Topolowa 15
62-090 Rokietnica k / Poznan
Tel. +48 618 429 349
Fax +48 616 465 405
centrala@donauchem.pl

Portugal
Horquim Representações, Lda.
Rua Central da Camposa, 1255
4425-322 Folgosa Maia
Portugal

Gilberto Marinho
Tel. +351 229 670 496 / 982
Fax +351 229 673 287
horquim@horquim.pt
www.horquim.pt

Russia / Belarus / Kazakhstan
Nortex Ltd
Dzerginskoe shosse, 9
140054, Kotelniki
Moscow region
Russia

Czech Republic / Slovakia
Donauchem Urseta
Za Žoskou 377
288 02 Nymburk
Czech Republik

Libor Kríž
Tel. +420 317 070 218
Fax +420 317 070 230
www.donauchem.cz

Turkey
Renk Kimya
Danismanlikl ve, Temilcilik Ltd. St.
Tütüncü Mehmet Efendi
Cad. Nergis, Apt. Nr. 27 / 14
Göztepe, İstanbul 34270

Ferah Emre
Tel. +90 216 369 34 96
Fax +90 216 369 37 11
renkkimya@superonline.com

:: AMERICAS

USA / Canada
Reaxis Inc.
941 Robinson Highway
McDonald, PA 15057-0279
Tel. +1 800 426 - 72 73
+1 724 796 - 15 11
Fax +1 724 796 - 31 60
www.reaxis.com

Dr. Leon A. Perez
Director of Technology
and Business Development
Tel. +1 724 796 - 31 14
Fax +1 724 796 - 31 60
leon.perez@reaxis.com

Michael Curcione
Market Manager Catalysts
Tel. +1 724 796 - 31 26
Fax +1 724 796 - 31 60
michael.curcione@reaxis.com

México / South America
TIB ChemCorp Mexicana, S.A. de C.V.
Eje 110 S / N
Zona Industrial
San Luis Potosi S.L.P. 78395
Tel. +52 444 824 - 77 17
Fax +52 444 824 - 77 20

Gabriela Valencia
Customer service
Tel. +52 444 824 - 78 76
Fax +52 444 824 - 77 20
gabriela.valencia@tib-chemicals.com

Argentina
Mayerhofer Argentina S.A.
AV. Elcano 3931
P.O. Box 01471
1427 Buenos Aires
Rep. Argentina

Alejandro de Gasperi
Tel. +54 11 455 540 03
Fax +54 11 455 439 15
mayerhofer@nosis.com.ar

Brazil
Aodran do Brasil Ltda.
R. Francisco Antonio Miranda, 215
03809 - 130 Sao Paulo
SP - Brasil

Marco Antonio Nardo
Tel. +5511 654 701 99
nardo@aodran.com.br

Chile
Pacific Resources
Europa 2030 Providencia
Santiago, Chile

Bernardo Infante
Tel. +56 (2) 233 67 92
Fax +56 (2) 231 21 40
binfante@pacificresources.cl

:: ASIA

India
Shamrock
320-321, Kuber Complex
New Link Road
Andheri (W)
Mumbai - 400 053
India

Bakul M. Shah
Tel. +91 222 674 06 31
Fax +91 222 674 06 30
bakul@shamrock.co.in

Indonesia / Singapore / Vietnam
PT. Barahana Elfindo Binasejahtera
Jl. Kamboja Raya Blok I No. 9
Tomang
Jakarta Barat 11430
Indonesia

Sebastian Lambert
Tel. +62 - 21 - 564 13 88
Fax +62 - 21 - 564 56 09
lambert@sejahtera-group.com

Iran
Palace Co. Ltd
Suite 5, 2nd floor
No. 21 / 1 Golfam Str.
Africa Blvd.
P.O. Box 19395 / 3548
Tehran 19156
Iran

P. Babooie
Tel. +98 212 205 90 33
Fax +98 212 205 39 58
palace@neda.net

Israel
W. Rosenstein Ltd.
14 Shenkar St. P.O.B 12691
Herzliya 46733
Israel

Miri Elenzweig
Tel. +972 997 188 09
Fax +972 997 188 50
miri@wrl-ltd.com

Malaysia
DKSH Malaysia Sdn Bhd
74, Jalan University
46700 Petaling Jaya
Selangor, Malaysia

Lawrence Chin
Tel. +603 - 796 696 18
Fax +603 - 796 023 72
lawrence.chin@dksh.com

Philippines
Chemwealth, Inc.
599 Mercedes Avenue
Brgy. San Miguel
Pasig City 1600
Metro Manila
Philippines

Fernando L. Chua
Tel. +63 273 894 28 31
Fax +63 264 156 23
flchua@chemwealth.com

Thailand
DKSH
PO Box 97840 S A M C 4
2533 Sukhumvit Rd.
Bangchack
Prakhanong
Bangkok 10260
Thailand

Warinluck Insee
Tel. +66 279 040 00
Fax +66 273 031 95
warinluck.i@dksh.com
www.dksh.com/thailand

:: AUSTRALIA / NEW ZEALAND

Australia
International Sales & Marketing Pty. Ltd.
262 Highett Road
Highett 3190
Melbourne
Australien

Steve Kelly
Tel. +61 295 802 400
Fax +61 295 808 045
skelly@ismaus.com

New Zealand
International Sales & Marketing NZ Ltd.
PO Box 97840 S A M C 4
Kingsford Smith Place
Mangere
Auckland
New Zealand

Damien Hond
Tel. +64 927 507 45
Fax +64 927 507 46
dhond@ismnz.com

