

Catalysts for 1K & 2K Polyurethane Systems

Metal carboxylates for urethanes



Catalysts for polyurethane systems provide:

- Increased chemical reactivity
- Improved chemical resistance of the final film
- Reduced cure times
- Enhanced mechanical properties of the final film

Tin Catalysts:

| Product Name | System* | Chemistry | Metal Content (%) | Use (%) | Reactivity | Description |
|------------------------------|---------|--------------------------|-------------------|---------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Borchers [®] LH 10 | W | Aqueous Emulsion (DBTDL) | 1.8 | 0.4-0.6 | High | <ul style="list-style-type: none"> ▪ Specially designed for waterborne two-component polyurethane coatings ▪ Accelerates the cross-linking process and improves the drying of chemically curing systems |
| Dibutyltin Dilaurate (DBTDL) | S | Laurate | 18.2 | 0.4-0.6 | High | <ul style="list-style-type: none"> ▪ Suitable to accelerate the cross-linking process of solventborne two-component polyurethane coatings ▪ Improves the drying of chemically curing systems favoring the isocyanate/polyol reaction over other side reactions such as isocyanate/water |

Tin-Free Catalysts:

| Product Name | System* | Chemistry | Metal Content (%) | Use (%)** | Reactivity | Description |
|------------------------------------------------|---------|-------------------------------|-------------------|--------------|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Borchi [®] Kat 24 | S | Bismuth 2-Ethylhexanoate | 24 | 0.01-0.03 | High | <ul style="list-style-type: none"> ▪ Solvent-free; specially designed for one- and two-component polyurethane systems ▪ Accelerates the chemical reaction between the alcohol and isocyanate component of polyurethane coatings systems, thus allowing optimum steering of the drying properties |
| Borchi [®] Kat 315 | S | Bismuth Neodecanoate | 16 | 0.01-0.03 | High | <ul style="list-style-type: none"> ▪ Solvent-free; specially designed for one- and two-component polyurethane systems and RTV silicones ▪ Accelerates the chemical reaction between the polyol and isocyanate component of polyurethane foam systems |
| Borchi [®] Kat 0243 | S | Bismuth/Lithium Neodecanoate | 11.4 | 0.02-0.06 | Medium | <ul style="list-style-type: none"> ▪ Specially designed for two-component solventborne polyurethane clearcoats ▪ Accelerates the chemical reaction between the alcohol and isocyanate component of polyurethane coatings systems, thus allowing optimum steering of the drying properties |
| Borchi [®] Kat 0244 | S | Bismuth/Zinc 2-Ethylhexanoate | 24 | 0.01-0.03 | Medium | <ul style="list-style-type: none"> ▪ Tin-, VOC-, and solvent-free catalyst based on a combination of metal carboxylates for polyurethane reactions ▪ Especially for solventborne and solvent-free one- and two-component polyurethane clear coats and two-component polyurethane adhesives |
| 2% Lithium Ten-Cem [®] WS | W/S | Lithium Neodecanoate | 2 | TBD in trial | Medium | <ul style="list-style-type: none"> ▪ Drier and esterification catalyst in the synthesis of unsaturated polyester resins ▪ Enables the resin manufacturer to produce resins of significantly lighter color while also allowing for better molecular weight control and improved product viscosities ▪ Must be used in addition to surface driers like Cobalt, Manganese, or Borchi[®] OXY-Coat |
| 22% Zinc Hex-Cem [®] | S | Zinc Octoate | 22 | 0.03-0.50 | Medium | <ul style="list-style-type: none"> ▪ Catalyst for solventborne one- and two-component polyurethane clearcoats and pigmented coating systems ▪ Keeps paint film "open" resulting in better through-drying of quick dry and baking systems; can prevent wrinkling and orange peel on paint film surface |
| 15% Potassium Hex-Cem [®] | S | Potassium Octoate | 15 | 0.2-1.0 | Low | <ul style="list-style-type: none"> ▪ Primary catalyst for rigid urethane foams, accelerator additive for unsaturated polyesters, and pot life stabilizer for two-component polyurethane systems ▪ Capable of stabilizing the rheological and pot life behavior of waterborne two-component polyurethane systems and decreasing discoloration of UPS systems caused by cobalt |
| 15% Potassium Hex-Cem [®] Water White | S | Potassium Octoate | 15 | 0.2-1.0 | Low | <ul style="list-style-type: none"> ▪ Potassium octoate synergist with cobalt for gel coats and UPR systems ▪ Interacts positively within the system to maintain reactive cobalt levels and reduce gel-time drift |

*S= Solventborne, W= Waterborne

**Calculated on total solid binder

Application recommendations and data on the back →

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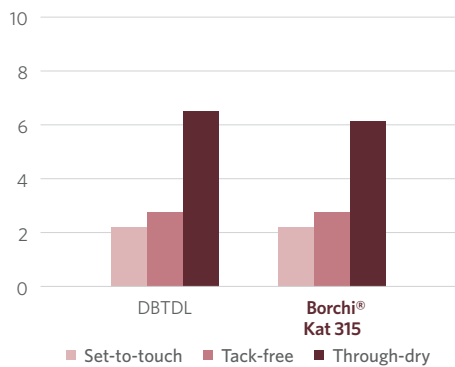
Catalyst recommendations for specific applications

| Metal | Product Name | Waterborne | Solventborne | Solvent-Free | Unsaturated Polyester | 2-comp. PU Coatings | | PU-Foams | Silicones | |
|--------------|------------------------------------|------------|--------------|--------------|-----------------------|---------------------|-----------|-----------------|-----------|----------|
| | | | | | | Clear | Pigmented | | RTV 2- | PU- mod. |
| Bismuth | Borchi® Kat 24 | ○ | ● | ● | ○ | ● | ● | ● Flex / Elast. | ○ | ● |
| | Borchi® Kat 315 | ○ | ● | ● | ○ | ● | ● | ● | ● | ● |
| Zinc | 22% Zinc Hex-Cem® | ○ | ● | ● | ○ | ● | ● | ○ | ○ | ○ |
| Mixed Metals | Borchi® Kat 0243 | ○ | ● | ○ | ○ | ● | ● | ○ | ○ | ○ |
| | Borchi® Kat 0244 | ○ | ● | ● | ○ | ● | ● | ○ | ○ | ○ |
| DBTDL | Borchers® LH 10 | ● | ○ | ○ | ○ | ● | ● | ○ | ○ | ○ |
| | Dibutyltin Dilaurate | ○ | ● | ● | ○ | ● | ● | ● | ● | ● |
| Potassium | 15% Potassium Hex-Cem® | ○ | ● | ○ | ● | ○ | ○ | ○ Rigid | ○ | ○ |
| | 15% Potassium Hex-Cem® Water White | ● | ● | ● | ● | ○ | ○ | ○ Rigid | ○ | ○ |
| Lithium | 2% Lithium Ten-Cem® WS | ● | ● | ○ | ○ | ○ | ○ | ○ | ○ | ○ |

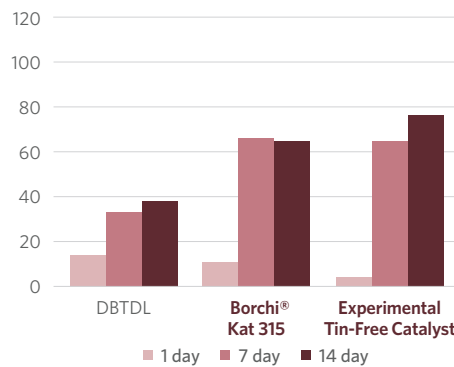
● Recommended
 ● Suitable
 ○ Only in combination
 ○ Only in specific applications
 ○ Not suitable

Comparing dry times, hardness, and pot life with DBTDL and tin-free catalysts*

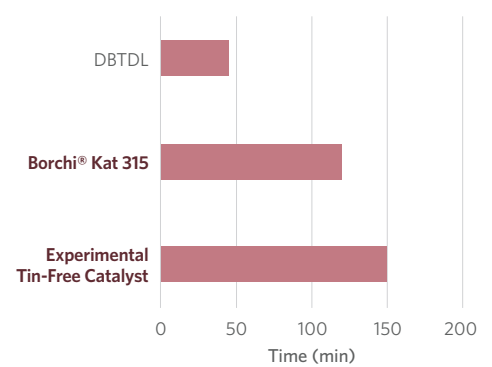
Faster Through-Drying Times with Borchi® Kat 315
in hours, white topcoat for protective and marine



Better Hardness with Tin-Free Catalysts
in seconds, high solids white topcoat for metal



Longer Pot Life with Tin-Free Catalysts
40°C, white topcoat for airmix and airless application



*includes experimental tin-free catalyst currently in development



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