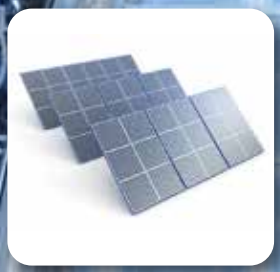
KING INDUSTRIES
® SPECIALTY CHEMICALS



K-PURE®

Specialty Additives

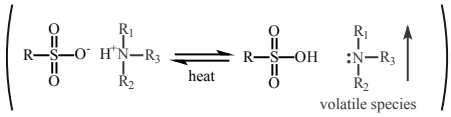
For Electronic Applications

K-PURE TAGs and CXC - Thermal Acid Generators and Catalysts

K-PURE TAG and CXC blocked acids are particularly effective for accelerating and lowering the activation temperature of stable, one component systems based on; aminoplast, glycoluril, siloxane, silanol and phenoxy condensation reactions as well as epoxy homopolymerization and co-polymerization with polyols, vinyl ethers, oxetane and anhydride resins. Blocking techniques and features are described below.

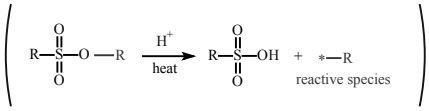
Amine Blocked Acids

Solubility in water and polar solvents
Broad activation temperature range
Volatile by-product



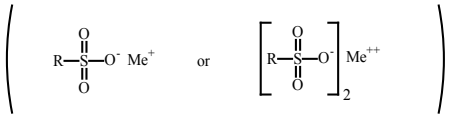
Covalently Blocked Acids

No volatile by-products
Narrower solubility range (hydrophobic)
Solventbased



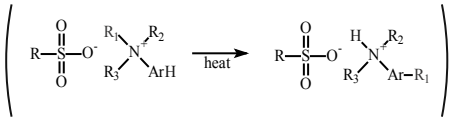
Metal Blocked Acids

Mono and divalent metals
Surface active compounds
Hydrophobic and hydrophilic
Corrosion inhibition with catalytic behavior



Quaternary Blocked Acids

Broad control over activation range
100% solids - white powders
Narrower solubility range (hydrophobic)
No volatile component



K-PURE CDR - Resin Modifiers

K-PURE resin modifiers offer formulators three core chemistries that can be used to improve mechanical properties, crosslinking density and resistance properties.

Core chemistries include unique ester diols with low molecular weight and very narrow molecular weight distribution, urethane diols with an aliphatic urethane backbone and an acteoacetate functional reactive diluent.

K-PURE CDR Type	Amino	Isocyanate	Silanol	Solvent	Solventless	Water	Epoxy *	Epoxy **
Ester Diols	✓	✓	✓	✓	✓	✓		✓
Urethane Diols	✓		✓	✓	✓	✓		
Acetoacetates	✓			✓			✓	

*Anionic
**Cationic

Ester Diols

Improve Flexibility
Reduce Modulus

Urethane Diols

Improve Chemical Resistance
Improve Adhesion

Acetoacetates (AA)

Improve Adhesion
Improve Corrosion Resistance

K-PURE CDI - Corrosion Inhibitors

K-PURE corrosion inhibitors represents a broad range of core chemistries for the protection of ferrous and non-ferrous metals. Most common applications and system dependency are found below.

Sulfonic Acids

Potting Compounds
Cleaners & Strippers

Phosphate

Cleaners & Strippers
Adhesives
Potting Compounds

Amino Acid Derivitives

Cleaners & Strippers
CMP Slurries
Ahdesives
Potting Compounds

Triazole Derivitives

Cleaners & Strippers
CMP Slurries
Wire
Adhesives
Potting

Acetoacetate

Adhesives
Potting Compounds

	Oil	Solvent	Solventless	Water	Wax
Sulfonic Acid	✓	✓		✓	✓
Phosphate		✓	✓	✓	
Amino Acid		✓	✓	✓	
Triazole			✓	✓	
Acetoacetate			✓	✓	

		Blocking Type	Min. Activation Range, °C	Attributes	
pTSA	TAG-2713	Amine	120-140	Solventbased, low color	Aminoplast and Silane Condensation Reactions
pTSA	CXC-1820	Amine	120-140	Waterbased, low color	Aminoplast and Silane Condensation Reactions
DDBSA	TAG-2172	Amine	120-140	Low color, more hydrophobic	Aminoplast and Silane Condensation Reactions
DDBSA	TAG-2179	Amine	160-180	Low color, more hydrophobic	Aminoplast and Silane Condensation Reactions
DDBSA	TAG-2507	Covalent	120-140	Hydrophobic	Aminoplast and Silane Condensation Reactions
Other	CXC-1767	Amine	110-140	Low color. Alternative to pTSA where sublimation is concern	Aminoplast and Silane Condensation Reactions
SbF_6	CXC-1612	Quaternary	80-110	Powder, most efficient product	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
OTf	CXC-1615	Amine	100-120	Liquid, 60% in H_2O/alcohol	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
OTf	CXC-1614	Quaternary	100-150	Powder, lowest temperature	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
OTf	TAG-2678	Quaternary	100-150	Powder	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
OTf	TAG-2689	Quaternary	130-170	Powder, improved solubility/stability	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
OTf	TAG-2690	Quaternary	180-220	Powder, highest temperature	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
OTf	CXC-1613	Metal	60-100	Solventbased 2K systems	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
TPFB	CXC-1821	Quaternary	80-110	Powder, Non Sb version of 1612	Epoxy Homopolymerization and Copolymerization Reactions with alcohol or vinyl ether
Other	CXC-1756	Metal	110-130	Liquid, water or solvent	Epoxy Anhydride

		OH # / AN / EW	Viscosity Range, cPs	Tg	Adhesion	Toughness
Ester Diols	CDR-3314	225-245 (OH#)	10,000 - 12,000	High	Excellent	Best
Ester Diols	CDR-3315	132-145 (OH#)	4,000 - 5,000	Low	Good	Good
Ester Diols	CDR-3316	250-270 (OH#)	1,200 - 1,800	Med	Good	Best
Ester Diols	CDR-3441	135 (OH#) / 30 (AN)	40,000 - 60,000	Low	Best	Fair
Urethane	CDR-3317	340-360 (OH#)	150,000 - 300,000	High	Good	Good
AA	CDR-3320	190 (EW)	900 - 1,200	N/A	Best	Fair

Metal Type	Ferrous	Ferrous & Soft Metals	Soft Metals	Ferrous & Soft Metals	Aluminum
K-PURE CDI Products	CDI-4301	CDI-4303 CDI-4310	CDI-4302 CDI-4308	CDR-3320	CDI-4311 CDI-4312

Notes:

References

Para toluene sulfonic acid	pTSA
Dodecylbenzene	DDBSA
Hexafluoroantimonate	SbF_6
Trifluoroantimonate sulfonic acid	OTf
Tetrakis (pentafluorophenyl) borate	TPFB
Acetoacetate	AA

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