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A photograph of a port at sunset or sunrise. Several large gantry cranes with blue and orange structures are visible, along with a white container ship docked at a pier. The water reflects the warm colors of the sky and the structures of the port.

K-WHITE®
Anti-corrosive Pigments

Application guide

Our K-WHITE® products are environmentally friendly, anti-corrosive white pigments that, unlike most conventional anti-corrosive pigments, contain no chromium or lead. In view of the increased environmental protection awareness, our K-WHITE® products are the ideal replacement for conventional anti-corrosive pigments.

Anti-corrosive pigments are used in a wide range of applications and K-WHITE® is available in several product variants, including both solvent-based and water-based types. Please ask us for the product grade that is best suited for a specific base material such as iron, aluminum, zinc or others.

		K-WHITE 84	K-WHITE 105	K-WHITE 140W	K-WHITE CZ610	K-WHITE CZ140W	K-WHITE G105	K-WHITE 450H	K-WHITE Ca650	K-WHITE Ex.No.31-18
Resin systems	Solvent based	Medium and Long oil alkyd resins	●	●	●	●		●	●	●
		Short oil alkyd resins	●	●	●	●		●	●	●
		Epoxy resins	●	●	●	●		●	●	●
		Polyester resins	●	●	●	●		●	●	●
		Chlorinated rubber	●	●	●	●		●	●	●
	Water based	Water soluble alkyd resins	●	●	●		●	●	●	●
		Waterborne epoxy resins	●	●	●	●	●	●	●	●
		Epoxy ester dispersions	●	●	●			●	●	●
		Acrylic emulsions	●	●	●		●	●	●	●
		Vinyl acrylic copolymers	●	●	●			●	●	●
	Powder coatings	Epoxy resins (Powder coatings)	●	●	●	●		●	●	●
		Polyester resins (Powder coatings)	●	●	●	●		●	●	●
	Uses	Electrodeposition coatings	●	●	●		●	●	●	●
		Coil coatings	●	●	●			●	●	●
		Automobile parts coatings	●	●	●	●	●	●	●	●
General Industrial coatings		●	●	●	●		●	●	●	
Architectural coatings		●	●	●	●		●	●	●	
Powder coatings		●	●	●	●		●	●	●	
Heavy-duty coatings		●	●	●	●		●	●	●	
Wash primer		●	●	●			●	●	●	
Substrates	Steel	●	●	●	●	●	●	●	●	
	Zinc galvanized steel	●	●	●		●	●	●	●	
	Aluminium	●	●	●			●	●	●	
	Magnesium alloy	●	●	●			●	●	●	

● Useable for some specific applications ● Excellent ● Good

The suggestions given in this application chart are given in good faith based on both laboratory experiences at TAYCA and known customer applications. The performance is dependant on many factors including the particular resin properties, pigment type and formulation, application conditions and indeed substrate pre-treatments), therefore the above suggestions should not be treated as absolute.



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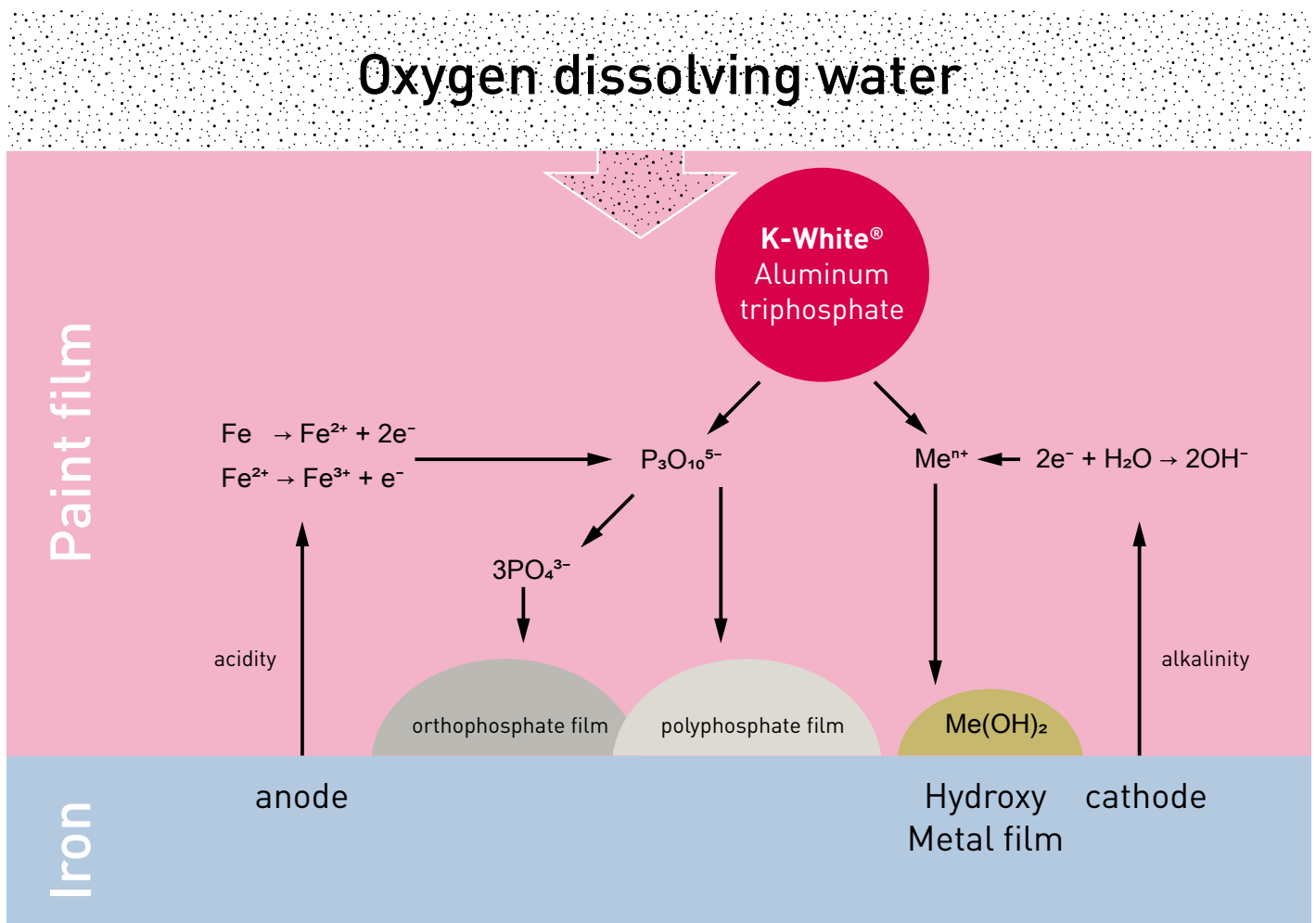
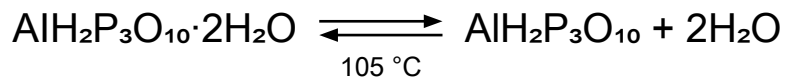
Aluminum triphosphate (K-WHITE®)

K-WHITE® products are environmentally friendly, anti-corrosive pigments. They are suitable for solvent and water-based coatings.

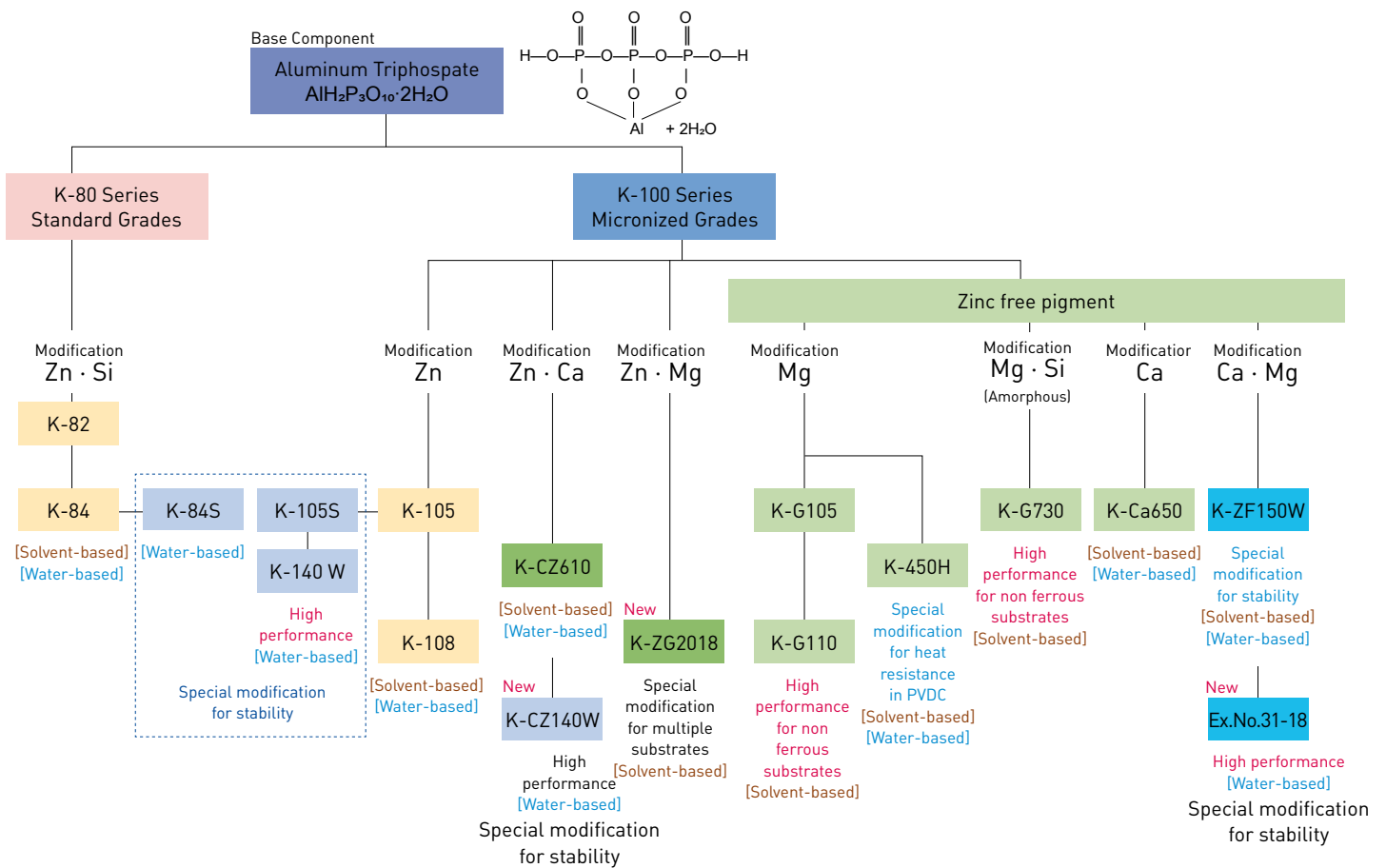
The pigments of K-WHITE®80 and K-WHITE®100 series are based on aluminum triphosphate and are modified with silicic acid, zinc and/or alkaline earth metal. The modification is specially adapted to the respective application and the resin systems used.

The functions of the K-WHITE® grades are:

- Optimization of pH control in the pigment (neutralization of the solid acid)
- Control of the dissolution of the soluble component and its ionic content



K-WHITE® Grades



APPLICATIONS

Solvent-based: K-105, K-82, K-84, K-Ca650, K-ZF150W, K-CZ610, K-ZG2018

Water-based: K-CZ140W, K-ZF150W, Ex.No.31-18

K-84, K-105, K-450H (Acid type resin as polyvinylidene chloride.)

Non ferrous substrates: K-G105, K-G110, K-G730, K-ZG2018 (Various galvanized steel (GI, GL, Galfan) & Aluminum etc.)

Update January 2024

Tayca Anti-corrosive Pigments

Tayca Corporation, founded in 1919, has been working on the research and development of specialty phosphate materials for many years. Their K-WHITE® product range is based on the unique properties and chemistry of aluminum triphosphate, and this technology has been developed by Tayca Corporation worldwide.



K-WHITE® Grades Y24/25

		Core			Core				New	New
	K-WHITE 82	K-WHITE 84	K-WHITE 84S	K-WHITE 105S	K-WHITE 105	K-WHITE 108	K-WHITE CZ610	K-WHITE 140W	K-WHITE CZ140W	K-WHITE ZG2018
particle form	standard grade	standard grade	standard grade	standard grade	micronized grade	micronized grade	micronized grade	standard grade	micronized grade	micronized grade
modified	Zn / Si	Zn / Si	Zn / Si	Zn / Si	Zn	Zn	Zn / Ca	Zn / Si	Zn / Ca	Zn / Mg
stabilized for	solvent & water	solvent & water	water	water	solvent & water	solvent & water	solvent & water		water	solvent
pH	6.5	6.4	6.5	6.6	6.5	6.7	7.1	7.0	8.9	9.4
Moisture* [%]	0.9	0.8	0.9	1.0	0.8	0.7	0.1	1.0	1.0	1.7
Matter soluble in water [%]	0.3	0.3	0.2	0.3	0.3	0.2	0.7	1.0	0.4	0.8
Oil absorption [ml/100g]	38	33	31	-	33	32	23	37	37	38
Specific gravity **	3.0	3.1	2.9	-	3.0	3.3	-	3.0	2.8	2.8
Density [ml/g]	3.9	3.4	3.3	-	3.1	4.3	-	4.0	-	-
Average particle size D50 [µm]	3.5	3.7	3.7	-	1.6***	1.6***	-	2.7	-	3.3
Residue 45µm [%]	-	-	-	0.02 residue on 350 mesh %	1.0	1.0	0.02		0.02	-
Description	Modification for stability focus solvent	Special modification for stability in solvent & water	Special modification for stability in water	Special modification for stability in E-coat system	Special modification for stability in solvent & water	Special modification for stability in solvent & water	Special modification for stability in solvent & water	Special modification for stability in water	Special modification for stability in water	Special modification for multiple substrates aluminium

		Core		Core		Core		New
zinc-free	K-WHITE G105	K-WHITE G110	K-WHITE 450H	K-WHITE G730	K-WHITE Ca650	K-WHITE ZF150W	K-WHITE Ex.No.31-18	
particle form	micronized grade	micronized grade	micronized grade	micronized grade	micronized grade	micronized grade	micronized grade	micronized grade
modified	Mg	Mg	Mg	Mg/Si amorphous	Ca	Ca / Mg	Ca / Mg	Ca / Mg
stabilized for	solvent	solvent	solvent & water	solvent	solvent & water	solvent & water	solvent & water	water
pH	9.5	9.5	7.7	9.5	7.1	9.5	9.3	9.3
Moisture* [%]	1.5	1.0	4.1	2.0	1.0	2.2	2.0	2.0
Matter soluble in water [%]	1.2	1.2	3.7	1.4	2.2	0.7	0.3	0.3
Oil absorption [ml/100g]	40	38	53	41	36	39	33	33
Specific gravity **	2.6	2.9	2.2	2.5	2.5	2.5	2.8	2.8
Density [ml/g]	4.3	-	4.1	-	4.6	-	-	-
Average particle size D50 [µm]	2.3***	3.3	3.5	-	3.5	-	-	-
Residue 45µm [%]	1.0	0.2	-	0.1	-	1.0	0.04	0.04
Description	Stability focus solvent at non-ferrous metals	non-ferrous metals / coil coating system	modification for heat resistance in chlorinated polymer (PVDC)	zinc galvanized steel / coil coating system	Special modification for stability in solvent & water	zinc free for water-borne resin systems	steel / modification for stability in water	steel / modification for stability in water

* = drying temperatur of 90±1°C to JIS K 5101

** = water used to replace kerosene to JIS K 5101

*** = micronized grades

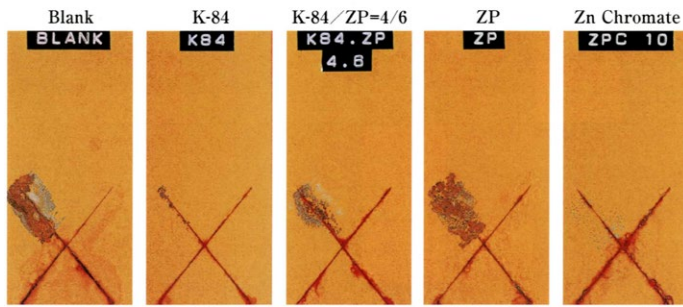
Representative analysis

Update TAYCA 01-24

Anti-corrosive test results of K-WHITE®

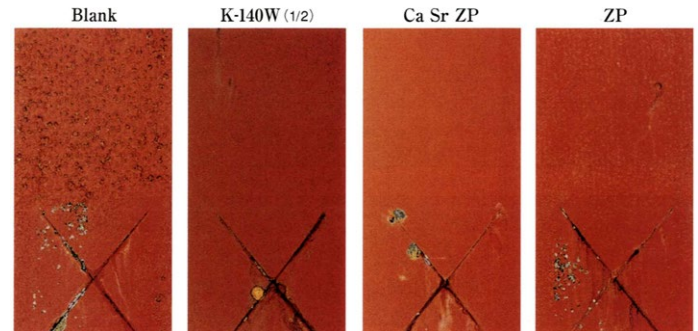
Solvent-based, steel panels, air-dried

- Salt spray test : 240 hours ● A/C pigment loading level : 10% in coating film
- Film thickness=30µm PVC=36% P/B=1.8



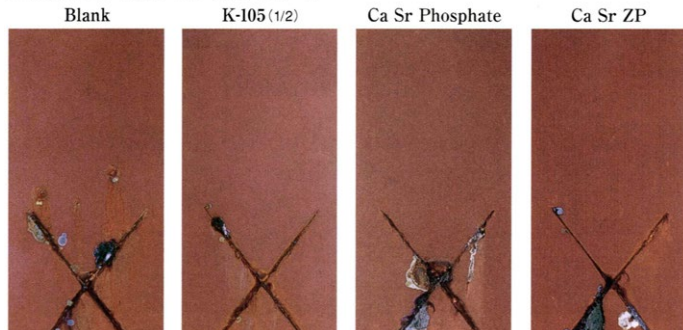
Water-based 1K, steel panels

- Salt spray test : 240 hours ● A/C pigment loading level : 5.0% (K-140W 2.5%) in coating film
- Film thickness=40µm PVC=25% P/B=1.0



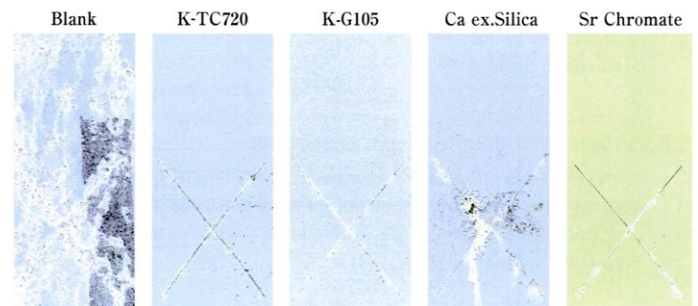
Water-based 2K, bonderizing steel panels

- Salt spray test : 2000 hours ● A/C pigment loading level : 8.6% (K-105 4.3%) in coating film
- Film thickness=40µm PVC=35% P/B=1.4



Solvent-based, zinc galvanized steel panels, stove enamel

- Salt spray test : 1300 hours ● A/C pigment loading level : 10% in coating film
- Film thickness=10µm PVC=21% P/B=1.0



Lehmann&Voss&Co. KG
 Alsterufer 19
 20354 Hamburg
 Germany
 Tel +49 40 44197-349
 Email: coating-solutions@lehvoss.de
 www.lehvoss.com/coating-solutions

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www.lehvoss.com

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