

**More Efficient New
Dispersant and Defoamer
for Waterborne Wood
Coatings**
高效新型水性木器涂料用
分散与消泡剂

Walee Wang/王全义
亚太区技术经理-添加剂
特洛伊特种化学品
Oct., 21th, 2015



The Gold Standard for Performance

Agenda/内容提要

- **Troy Corporation Brief Introduction /特洛伊特种化学品集团简介**
- **How to solve surface defects with Troysol Multi-functional Surfactants/应用特洛伊多功能表面活性剂来改善水性木器涂料漆膜缺陷**
- **High performance defoamer Troykyd D209W in Controlling Micro/Macro Foams in waterborne wood Coatings /高效消泡剂Troykyd D209W在水性木器涂料中的应用**
- **Low foaming, APEO-free, more efficient new dispersant Troysperse ZWD1 suitable for waterborne industrial and wood coatings, colorants/环保型高效、低起泡型的100%分散剂Troysperse ZWD1在水性高端工业/木器涂料、色浆中的应用**



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Troy Corporation, /特洛伊特种化学品公司简介

- Founded in 1950's/成立于1950's
- Troy Corporation Headquarter: Florham Park, New Jersey, US/集团总部于美国新泽西州
- Develops and manufactures performance materials/研发和生产高端化学品
- Global Sales/Distribution to over 90 Countries/全球销售网络超过90个国家
- Six Modern Manufacturing Facilities in 6 Countries/六大生产基地
- Over 19 separate worldwide sales location/19个全球商务中心





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Global Facilities / 全球生产研发基地



**Troy Corporation Headquarter
Florham Park – New Jersey**



Troy Siam, Thailand



**Troy Corporation,
Bangkok, Thailand**



**Troy Chemie, GmbH
Seelze, Germany**



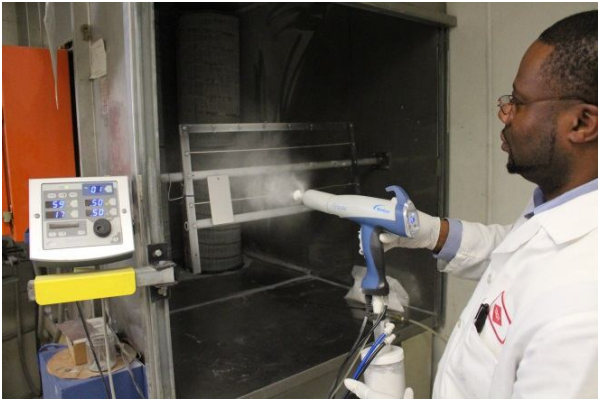
**Troy Corporation,
Shanghai, China**



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R&D, Application Centers / 研发应用技术中心

- **6 Application Development Centers/全球六大技术应用中心**
- **3 Products Development Centers/三大全球研发中心**
- **7 Diverse Field testing location worldwide/七大室外测试基地**



US lab



China Lab



Thailand Lab



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Troy Performance Products

End-users: 终端客户领域

- **Coatings&Inks /涂料油墨**
- **Adhesives & Sealant/胶粘剂**
- **Cosmetics & Personal Care/个人护理品**
- **Constructions/建筑**
- **Lubricants & Cutting Oils/润滑油**
- **Paper/造纸**
- **Pigment Dispersions/色浆**
- **Plastics/塑料**
- **Wood Preservation/木材保护**
- **Metal Working Fluids/金属加工**

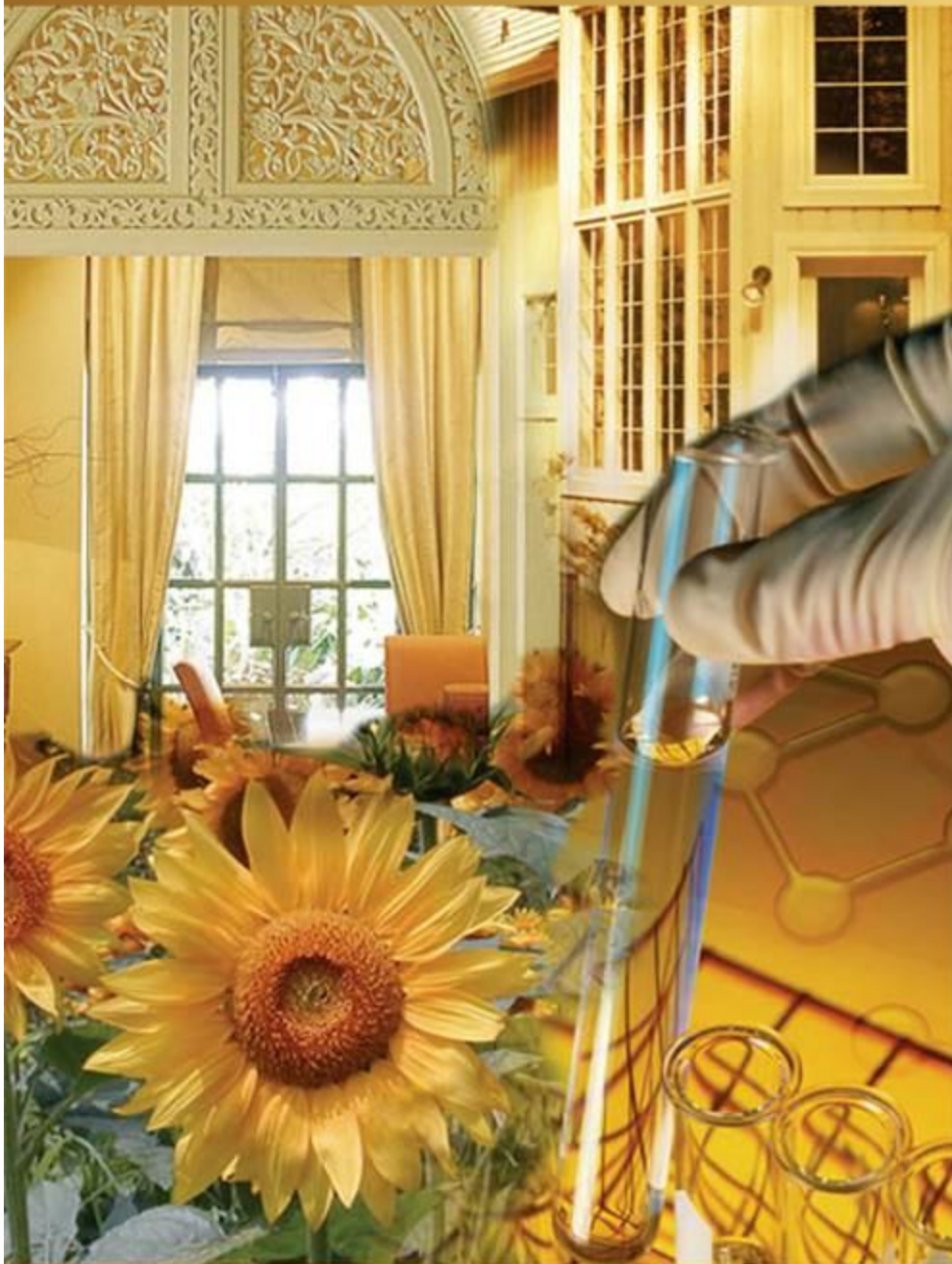




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Troy Performance Products Portfolio/产品线分布

- ▶ **Dry Film& Wet State Preservatives (Polyphase®)/干膜防霉**
- ▶ **In-Can Preservatives (Mergal®)/罐内防腐**
- ▶ **Defoamers (Troykyd®) /消泡剂**
- ▶ **Substrate Wetting Agents(Troysol TM)/流动流平剂**
- ▶ **Mar Resistance & Slip Agents (Troysol TM)/滑爽抗刮伤助剂**
- ▶ **Dispersants (Troysperse TM)/润湿分散剂**
- ▶ **Rheology Modifiers (Troythix®)/流变助剂**
- ▶ **Powder Coatings Additives (Powdermate®)/粉末涂料助剂**
- ▶ **Driers & Catalysts (Troychem TM, Troymax TM)/催干剂**
- ▶ **Anti-Skinning Agents (Troychem TM)/抗结皮剂**



How to solve surface defects with Troysol Multi-functional Surfactants / 应用特洛伊多功能表面活性剂来改善水性木器涂料漆膜缺陷



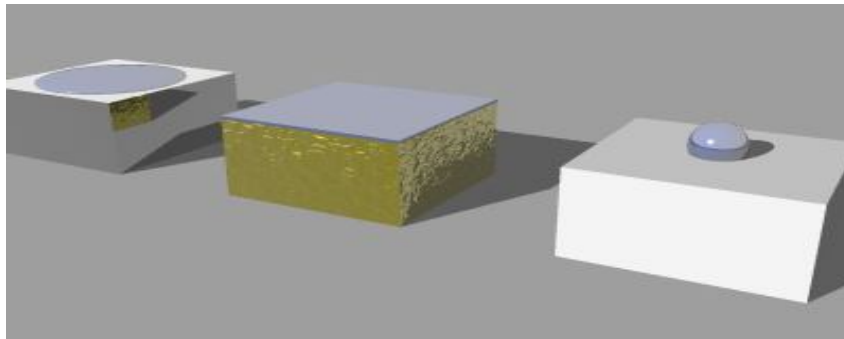
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Coating Surface Tension is Critical for Wetting Performance

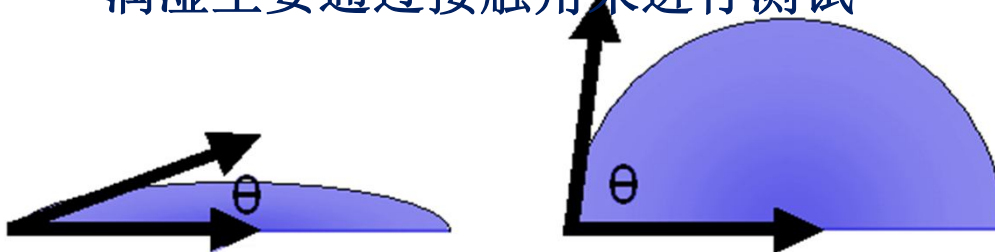
涂料表面张力对润湿来说是关键

Wetting requires the liquid surface tension be lower than the critical surface tension of the solid surface

润湿需要液体表面张力低于固体表面张力



Wetting is measured by contact angles/
润湿主要通过接触角来进行测试



Oil on Steel

Water on Teflon

Solvents	Surface Tension (dynes/cm)
WATER/水	72.7
ETHYLENE GLYCOL/乙二醇	48.4
XYLENE/二甲苯	36.0
TOLUENE/甲苯	28.4
BUTANOL/正丁醇	24.6
MINERAL SPIRITS/矿物油	24.0
VM&P NAPHTHA/石脑油	22.0
SILICONE OIL/硅油	24.0
MOTOR OIL/润滑油	35.4

Needs to be lower than

Substrates	Critical Surface Tension (dynes/cm)
GOLD	57.4
POLY(VINYL BUTYRAL)	53
POLY(VINYL CHLORIDE)	42
POLYETHYLENE	32
TREATED POLYETHYLENE	42
ALUMINUM	37-45
IRON	36-45
COMMERCIAL TINPLATE	30-40
TEFLON	20



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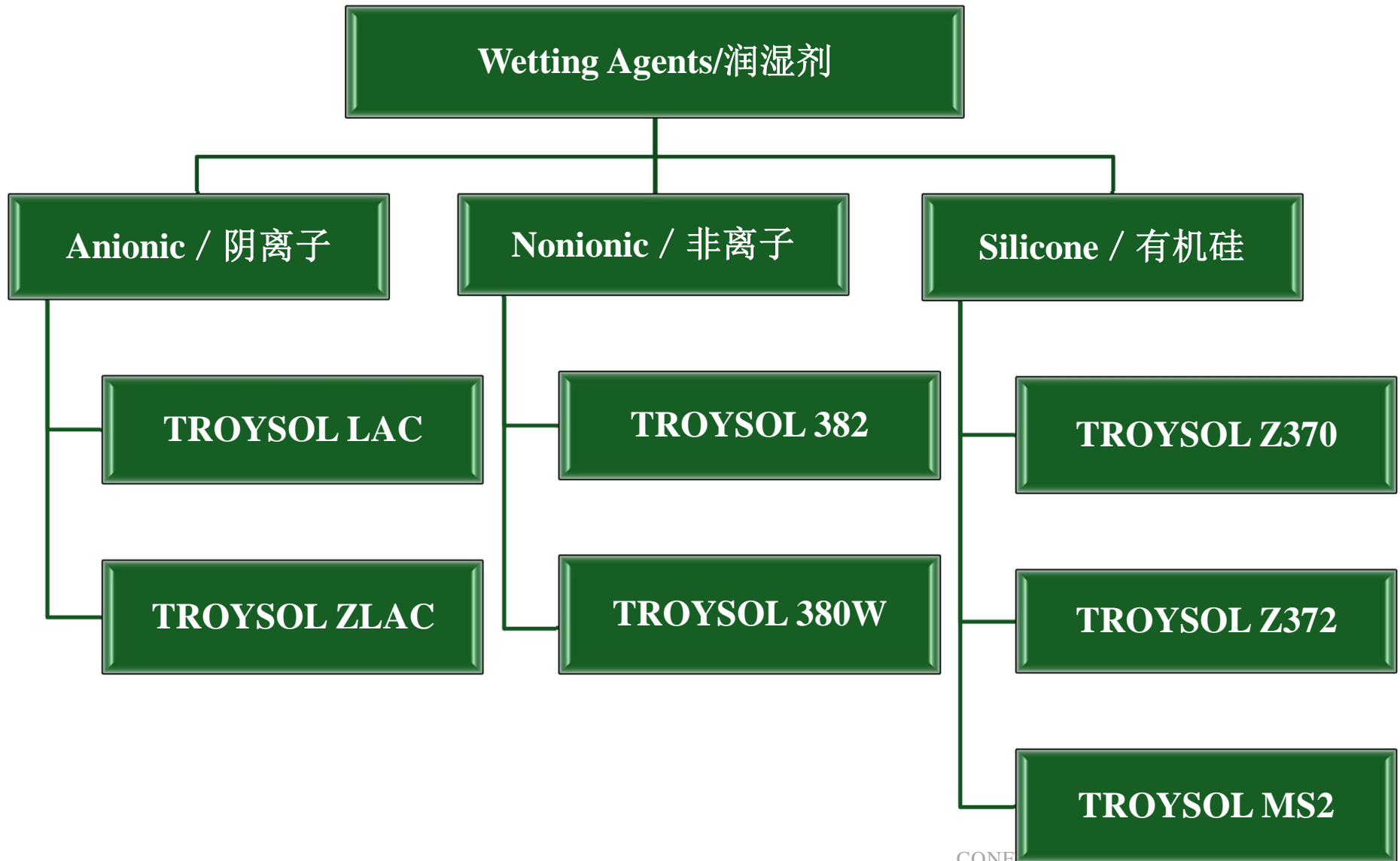
How Do Wetting Additives Work/润湿剂的特性

- ▶ Surface tension (ST) affects/表面张力
 - ▶ Application – Dynamic/动态
 - ▶ Substrate wetting – Static/静态
 - ▶ Surface flow & leveling – Static/静态
- ▶ Surface properties enhancement (**Surface Slip**)
 - ▶ Abrasion & Mar resistance (scrub resistance)/抗划伤
 - ▶ Blocking resistance/抗粘
 - ▶ Stain resistance /抗污
- ▶ Watch for positive/negative effects
 - ▶ Defoaming/Air entrainment-/消泡
 - ▶ Water sensitivity (increased or decreased)/水敏感性
 - ▶ Inter-coat adhesion/重涂性



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Troysol Waterborne Wetting Additives / 特洛伊水性底材润湿剂



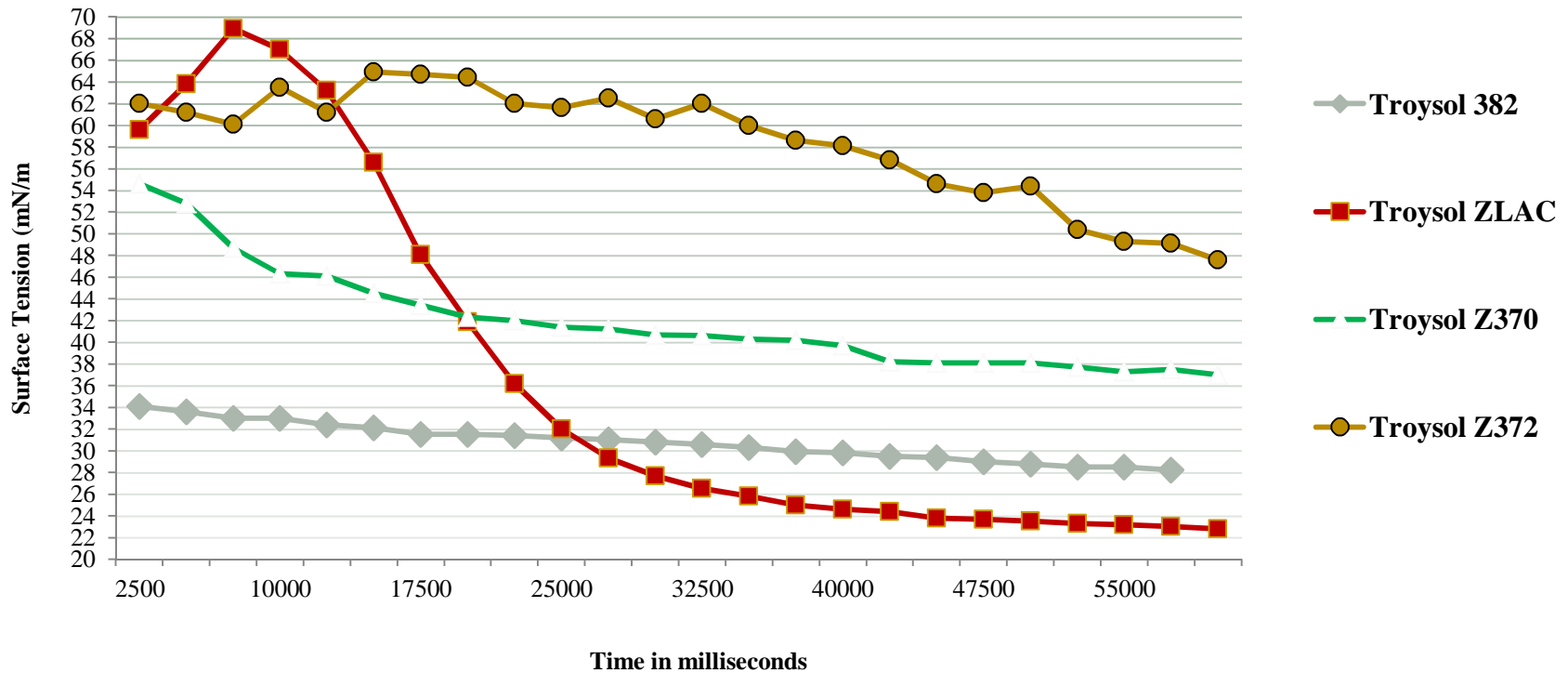
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Troysol Waterborne Wetting Additives / 特洛伊水性底材润湿剂

**DYNAMIC SURFACE TENSION
With Additives at 0.1% in DI Water**





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Troysol™ LAC/ZLAC

What It Is/简介

- ▶ **High Performance Wetting Additive for Aqueous Systems/水性高性能润湿剂**
 - ▶ Chemistry: anionic surfactant, silicone-free/阴离子表面活性剂，不含有机硅
 - ▶ Form: liquid/液体

- ▶ **Troysol ZLAC**
 - ▶ **'Green'** additive/绿色环保型助剂
 - No VOC contribution/不含VOC
 - HAPs-free/不含HAPs
 - APE-free/不含APE
 - ~50% is made from renewable resources/50%来自可再生原料



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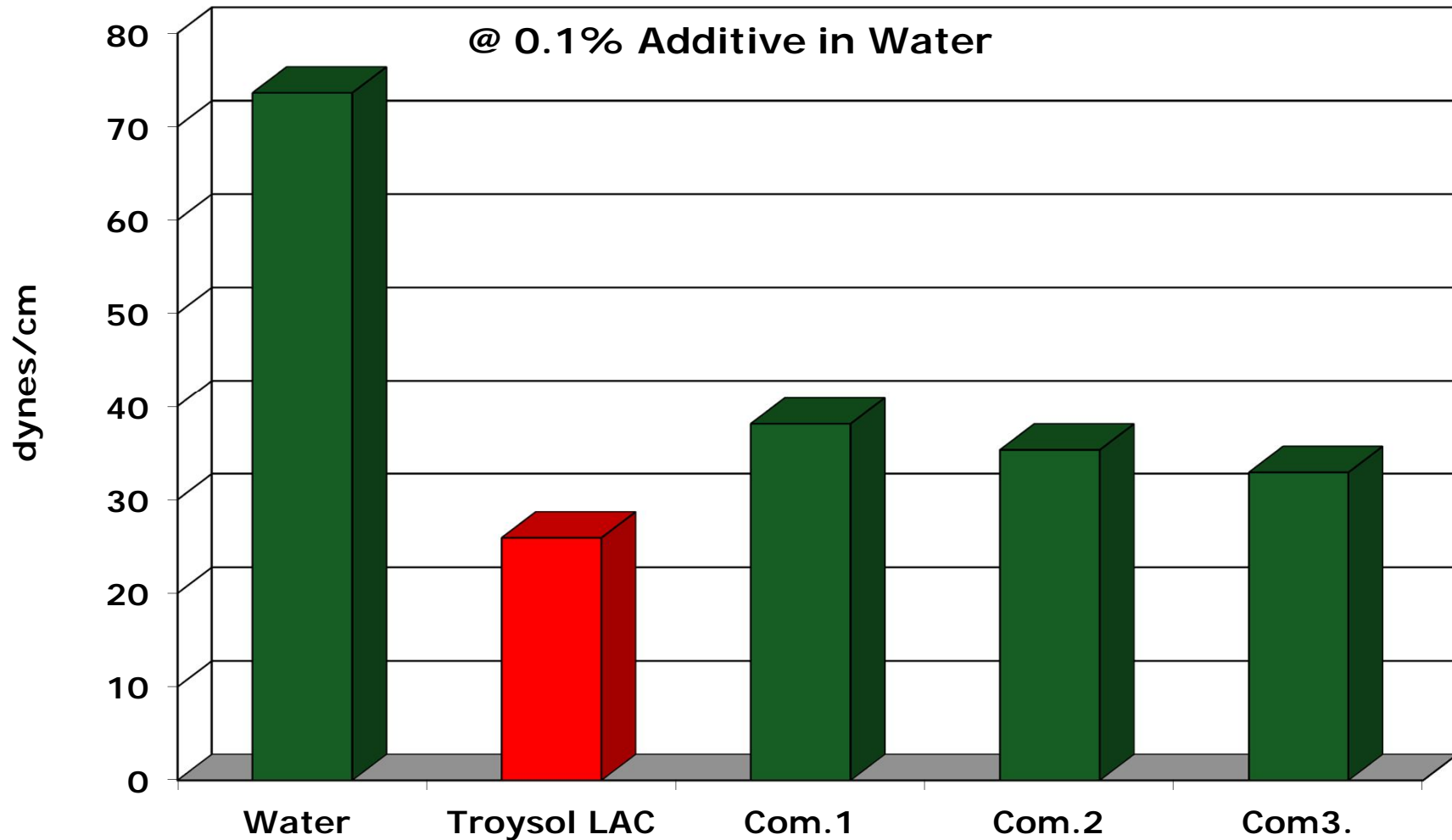
Troysol™ LAC/ZLAC Multi-functional/多功能助剂

- ▶ **Excellent substrate wetting/优异的底材润湿**
 - ▶ Effective in wetting low energy & contaminated surfaces/特别有效润湿低表面能底材
 - ▶ Improves system adhesion/提升系统附着力
- ▶ **Improves surface flow & leveling/提升表面流平**
 - ▶ Eliminates film defects such as craters, fish eyes, and orange peel/避免漆膜缺陷
 - ▶ Improves gloss and DOI/提升光泽和DOI
- ▶ **Aids in Color Acceptance/提升展色性**
 - ▶ Eliminates color floating and flooding/避免浮色发花



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Surface Tension Reduction in Water/ 表面张力降低示意图

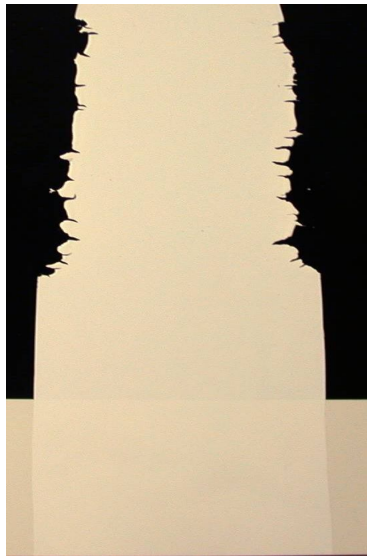




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Troysol LAC/ZLAC Provides Low Coating Surface Tension /提供较低的表面张力

Anionic Surfactant Promotes Excellent Substrate Wetting/ 提供优异的强烈的底材润湿性能



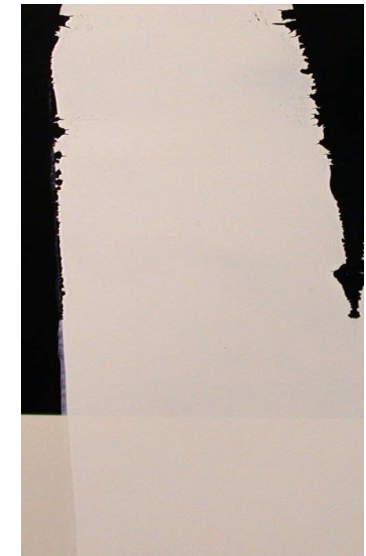
Control/
空白样



0.7% Troysol LAC
阴离子表面活性剂



0.9% Troysol Z370
改性有机硅



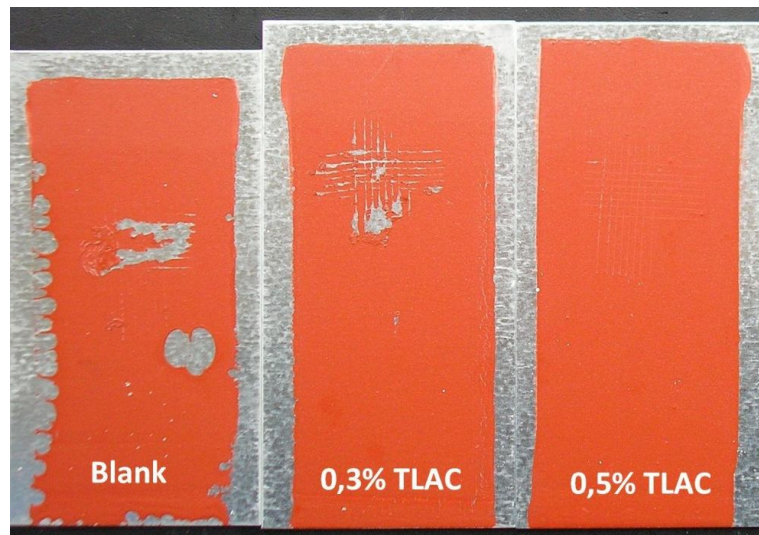
0.9% Troysol 382
100% 炔醇基表面活性剂



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Aqueous Metal Primer Shows Improved Adhesion/改善附着力

Troysol LAC/ ZLAC provides superior substrate wetting with adhesion improvement. /不仅提供极佳的底材润湿，而且提供更好的底材和层间附着力



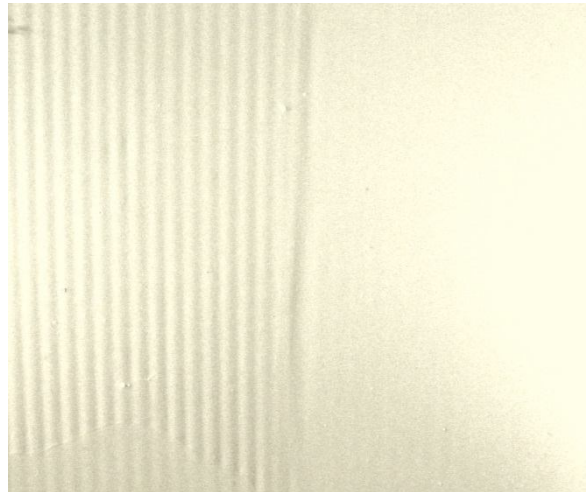
Substrate/底材	Use Level/用量	Troysol LAC/ZLAC
Zinc Coated Steel/镀锌钢板	Blank/空白	5
	+0,3%	4
	+0,5%	1-2



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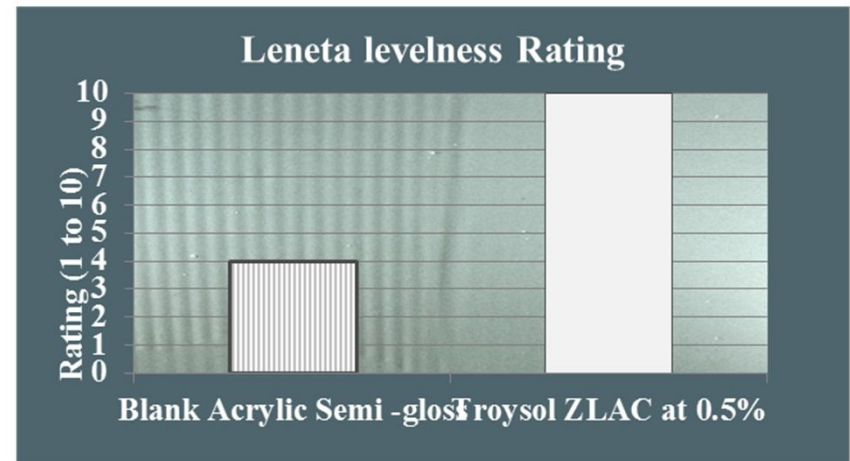
Troysol ZLAC Promotes Improved Surface Smoothness/提高漆膜表面流平效果

Troysol ZLAC Promotes Leveling in Low VOC Acrylic Coating/ 提供优异的流平性能



Control/空白

0.5% Troysol ZLAC



**Use of 0.5% Troysol ZLAC on formula weight results in perfect smoothness/
0.5% Troysol ZLAC提供良好的流平效果**



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Troysol ZLAC Promotes Excellent Color Uniformity/提升展色性能

Troysol ZLAC Promotes Excellent Color Acceptance in Pigmented Acrylic Tinting Base/提供优异展色性能



Control/空白

Troysol LAC 0.3%

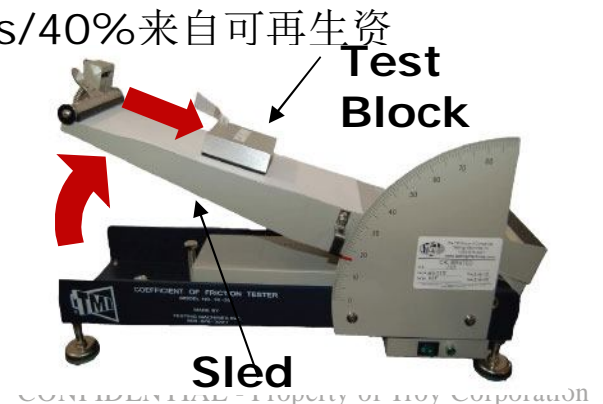


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Troysol™ Z370

What It Is/简介

- ▶ **High Performance Multi-functional, Universal Wetting, Mar and Slip Additive for Solvent, Water-Reducible and Aqueous Systems/高端，多功能型通用型底材润湿剂；水油通用，同时提供清爽和耐擦伤性能**
 - ▶ Chemistry: Siloxane Co-Polymer/有机硅氧烷共聚物
 - ▶ Form: Liquid/液态
 - ▶ **“Green” Additive/绿色环保型**
 - No VOC Contribution
 - 0 VOC following US EPA Method 24
 - HAP's-free (Hazardous Air Pollutants)
 - APE-free (Alkyl Phenol Ethoxylate)
 - ~40% is made from renewable resources/40%来自可再生资源



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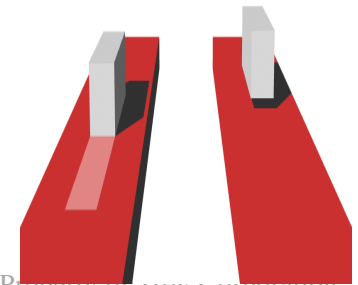


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Troysol™ Z370

Multi-functional/多功能性

- ▶ **Excellent substrate wetting/优异底材润湿**
 - ▶ Eliminates film defects such as craters, fish eyes and orange peel/改善漆膜缺陷
- ▶ **Improves surface flow & leveling/提升表面流平**
 - ▶ Improved Film Appearance & Gloss/提升漆膜外观
- ▶ **Increases surface slip/提升表面滑爽**
 - ▶ Improved abrasion and mar resistance/改善耐擦伤性能
 - ▶ Improved Block resistance/耐粘性能
 - ▶ Improved scrub & stain resistance/耐污性
- ▶ **Low foam contribution/defoaming**
- ▶ **Excellent clarity/优异的清晰度**





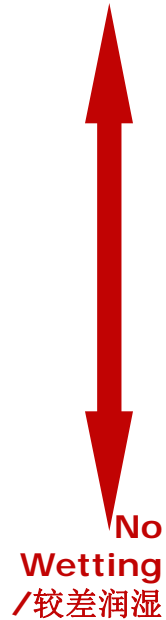
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Troysol Z370 Improves Wetting /提高底材润湿

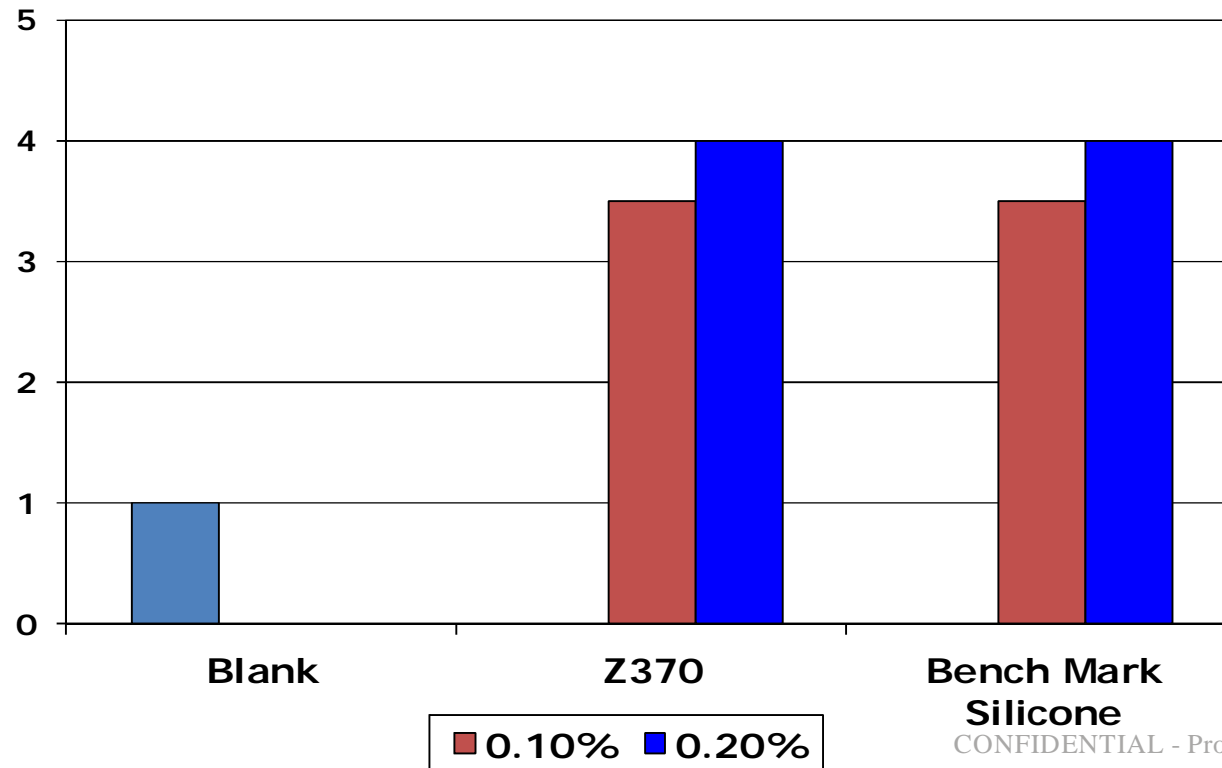
Provides Excellent Substrate Wetting
/提供优异的底材润湿

Clear Polyurethane Dispersion for
Industrial Wood/在聚氨酯木器涂料清漆中

Excellent
Wetting/
优异润湿



No
Wetting
/较差润湿



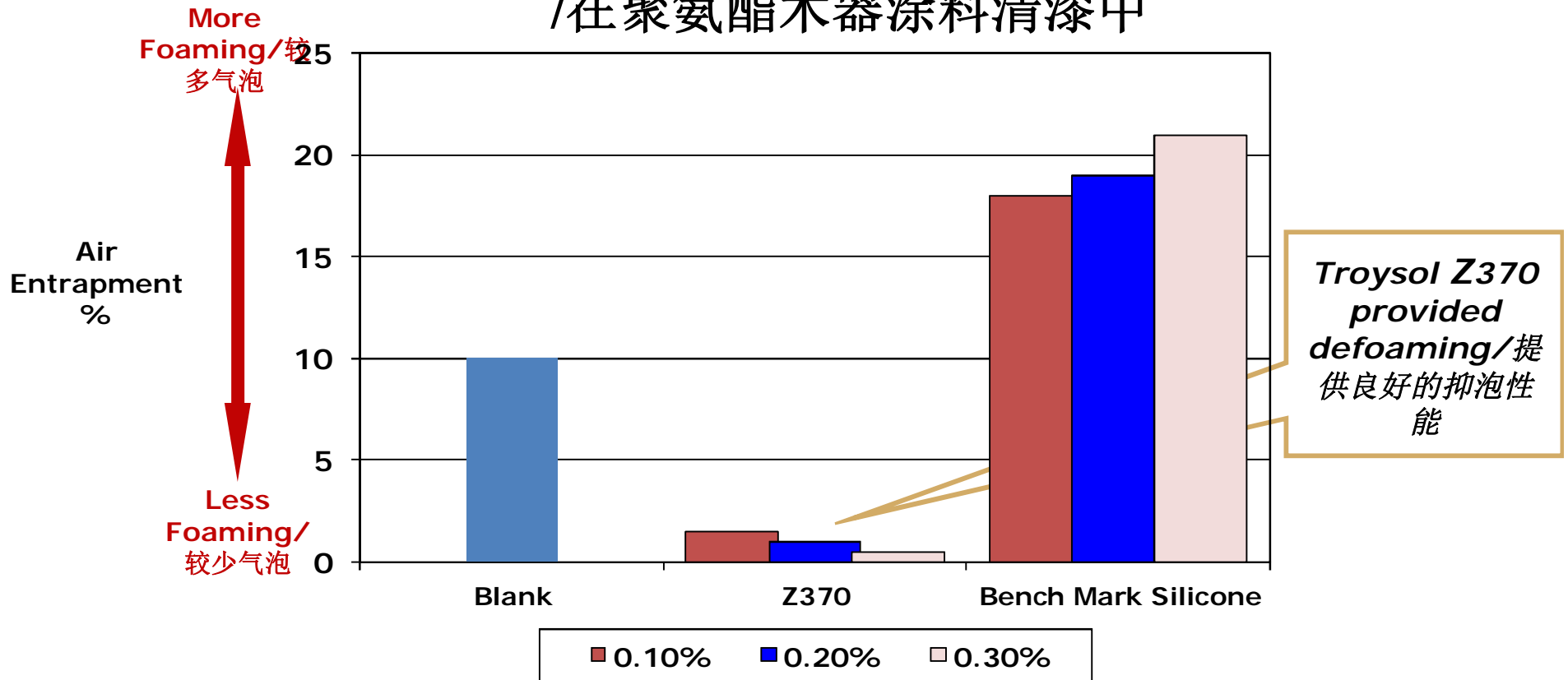


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Troysol™ Z370

Has Defoaming Properties/具有抑泡能力

Clear Polyurethane Dispersion for Industrial Wood /在聚氨酯木器涂料清漆中



Z370 Provides Significantly Lower Foaming /较低的起泡性



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Troysol™ 382

What It Is/简介

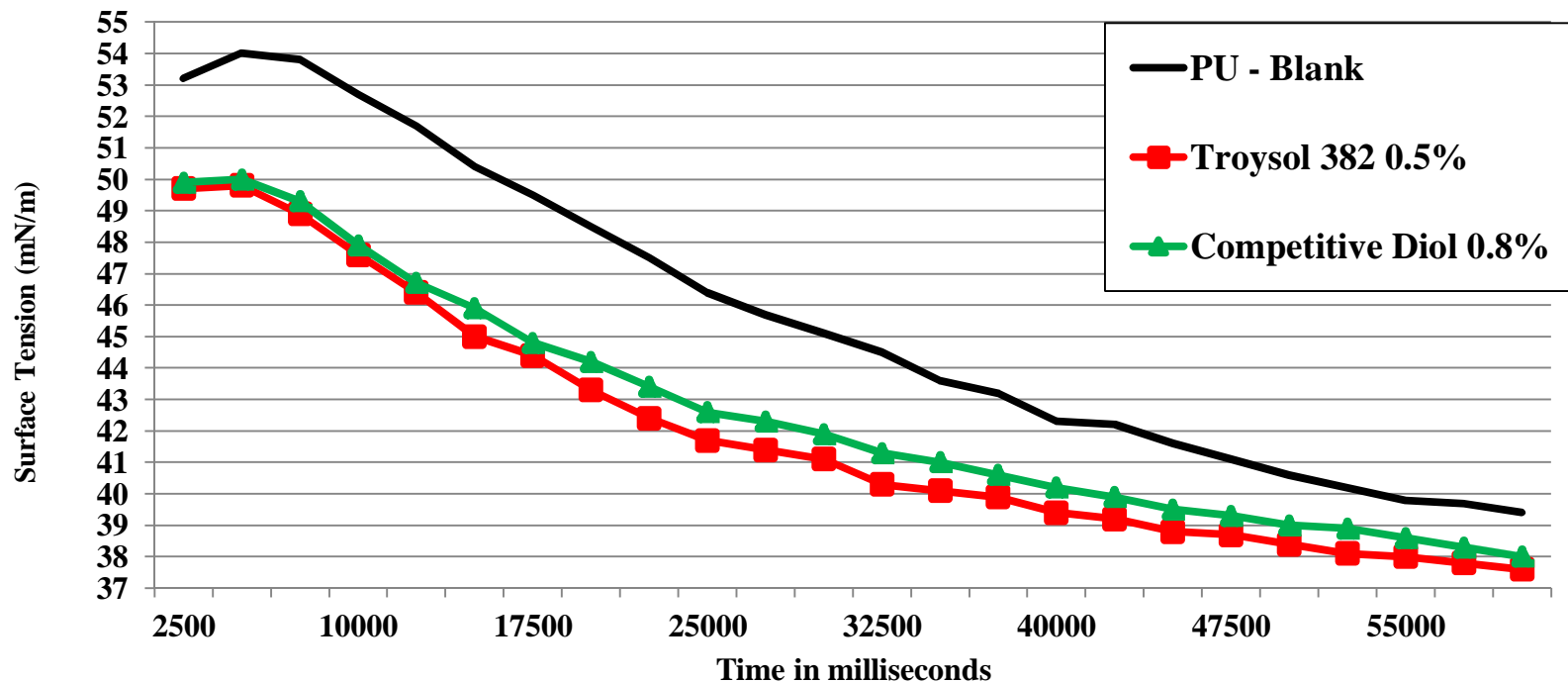
- ▶ A low dynamic surface tension wetting additive for aqueous systems/较低的表面张力，适用于水性系统
- ▶ Unique liquid composition - 100% active /100%独特成分
- ▶ Competes directly with Acetylene Diol based products/可直接替代乙炔二醇基产品
- ▶ Strong dynamic surface tension (ST) reduction/强烈降低动态表面张力
- ▶ Improves system application in high speed process /提升体系施工性能
- ▶ Effective at reducing static ST/改善静态表面张力
- ▶ Good substrate wetting/良好底材润湿
- ▶ Effective in elimination of surface defects/改善表面缺陷
- ▶ Provides defoaming in aqueous systems/不影响体系起泡性能



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Troysol™ 382 Promotes Low Dynamic ST/ 较低的动态表面张力

Troysol 382 exhibits similar dynamic surface tension at 0.5% Vs Competitor at 0.8% when tested in Polyurethane Wood Coating/ 水性聚氨酯体系中，表现快速降低动态表面张力且添加量较少，加量为0.5%wt





Troysperse[®] ZWD1

Low foaming, APEO-free, more efficient
/环保、高效、低起泡型的100%分散剂



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Troysperse™ ZWD1

Product Introduction/产品介绍

- ▶ **100% active pigment dispersant / 100% 颜料分散剂**
 - ▶ VOC free for use in green systems/不含VOC
 - ▶ Use for Carbon Black and Organic pigments/特别适合碳黑和有机颜料
- ▶ **Fast dispersion time, excellent dispersion stability/快速分散, 优异的分散稳定性**
- ▶ **Excellent color development, High pigment loadings/优异的展色性, 可允许高颜料含量**
- ▶ **FDA/Food Contact Listings/符合相关FDA**
- ▶ **FDA 175.105 / 176.170 / 176.180**
 - ▶ EU 10/2011, EU 1282/2011 (FCM 708, SML = 42 mg/kg)
 - ▶ BfR XV



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Troysperse™ ZWD1

Product Introduction/产品介绍

- ▶ **Effective in wide range of aqueous color dispersions/适合于广泛的水性色浆**
 - ▶ Color pigment concentrates/颜料浓缩浆
 - ▶ Industrial color coatings/工业涂料
 - ▶ Printing inks/印刷油墨
- ▶ **Can be used in the following application areas:/可应用于下列领域**
 - ▶ Architectural Coatings/建筑涂料
 - ▶ Automotive/OEM Coatings/汽车涂料
 - ▶ Wood Coatings/木器涂料
 - ▶ Protective Coatings/工业维护涂料



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Waterborne Red Colorant Guide Formulation/水性色浆参考配方

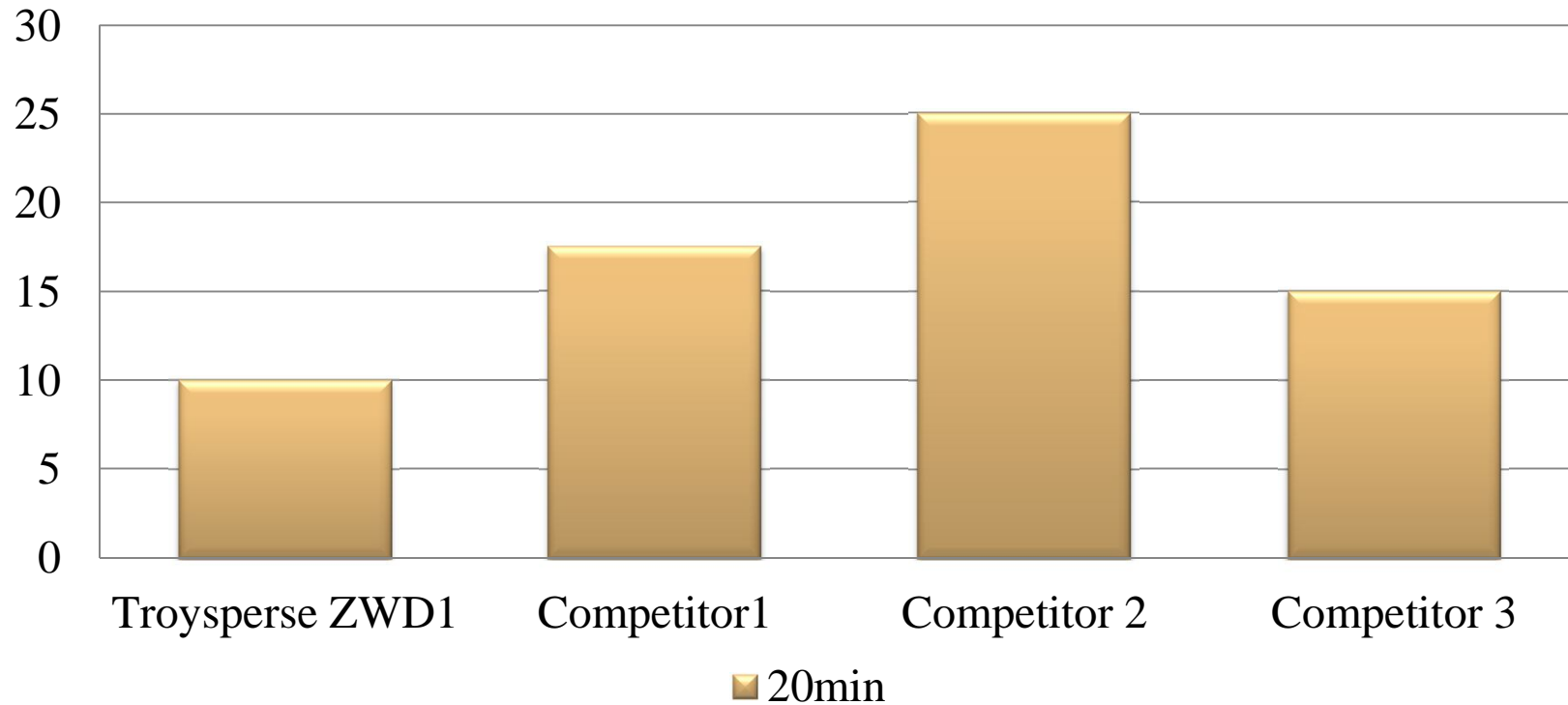
Raw Materials/原料	Troysperse ZWD1	Competitor 1/ 竞争品1	Competitor 2/ 竞争品2	Competitor 3/ 竞争品3
Water	54.5	54.5	54.5	54.5
Propylene Glycol	2	2	2	2
Mergal K10N	0.1	0.1	0.1	0.1
Troykyd D209W	1	1	1	1
Dispersants	7.5	7.5	7.5	7.5
Pigment Red 57:1	35	35	35	35
Adding 1.5mm Zirconium Dioxides Beads, then grinding around 25min till 10 microns./加入锆珠，研磨20分钟左右到10微米				
Total	100.1	100.1	100.1	100.1



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Dispersibility Comparison, in waterborne colorants / 分散性比较

Dispersibility Comparison, Red Inks Colorant, μm

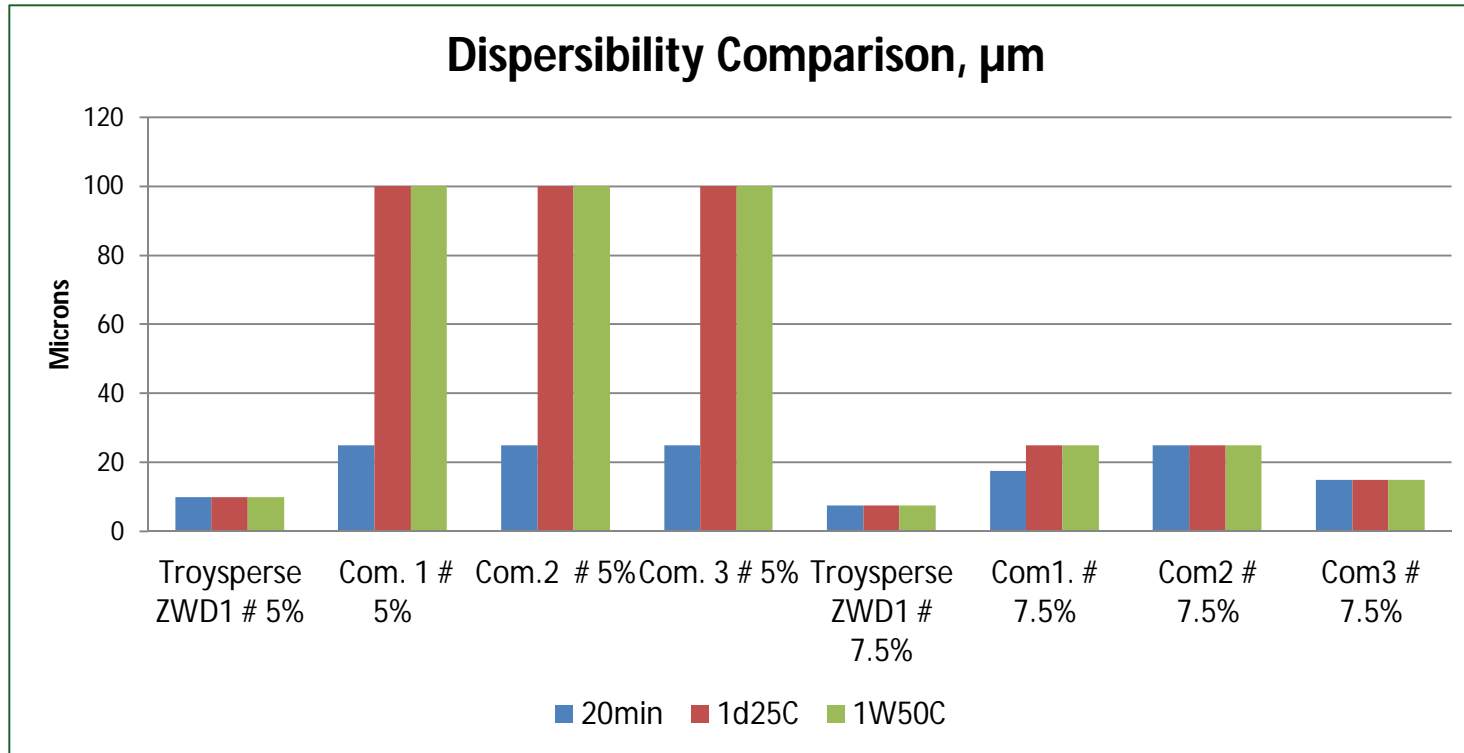


在同等添加量时，Troysperse ZWD1 提供更佳分散性



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Brookfield Viscosity Comparison, cP / 粘度比较



Troysperse ZWD1 获得较低的粘度和储存稳定性，特别是：使用量同竞争品相比，用量明显较低（可降低使用量30%到50%左右）



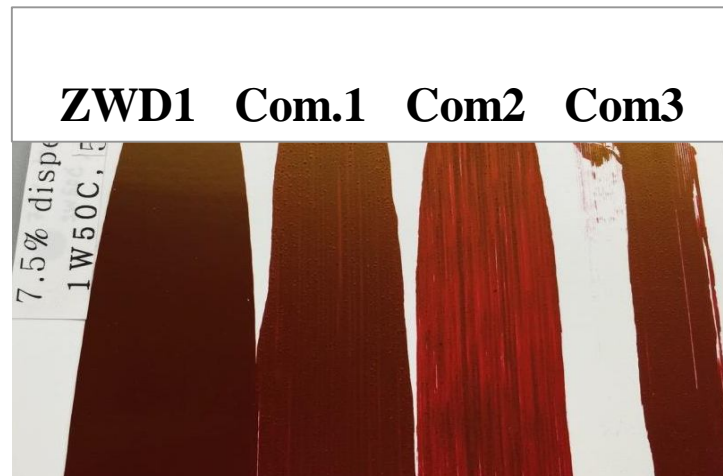
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Color Development Comparison/展色性比较

100% 色浆，初始



100% 色浆，1周后



Troysperse ZWD1 提供优异的颜色稳定性和展色性能，其他颜色的原始色浆和兑稀色浆有结粒现象

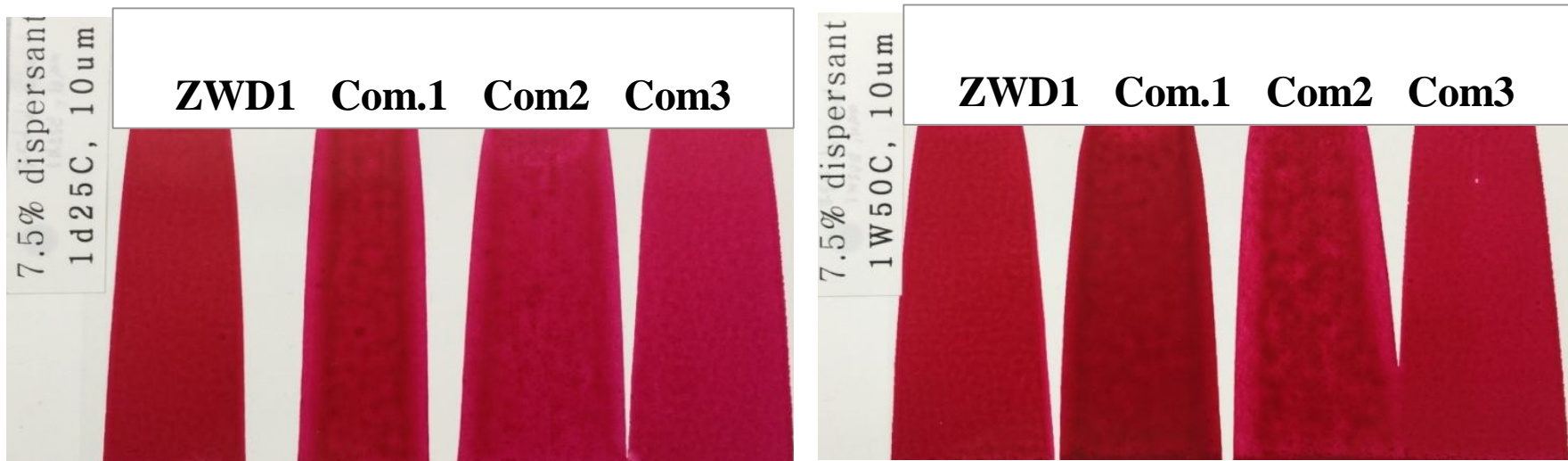


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Color Development Comparison/展色性比较

20% 色浆，初始

20% 色浆，一周后



Troysperse ZWD1 提供优异的储存稳定性，无结粒现象



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WB Colorants Comparison, Carbon Black Pigment/水性碳黑色浆

Guide Formulation/色浆配方

Raw Material/原材料	Weight%/用量	Function/功能
Water	85	
Propylene glycol	1.2	Co-solvent
Troykyd D 209W	1.2	Defoamer
Dispersant	4.8	Dispersant
FW200	7.8	Pigment
Total	100	

Test Results/测试结果

	Troysperse ZWD 1	Competitor /竞争品
Initial/当天		
Fineness, μm /细度	15	100
Brookfield Viscosity, cP		
Spindle	18	63
10rpm	1.8	8878
20rpm	1.35	5429
50rpm	1.86	2891
100rpm	2.73	1554
1 Month Later,/一月后		
Fineness, μm /细度	15	100



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WB Colorants Comparison /水性碳黑色浆外观

Troysperse ZWD1



Competitor/竞争品



在同等添加量时，Troysperse ZWD1 提供较低的粘度和更好的流动性能，同时获得良好的储存稳定性



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Troysperse™ ZWD1 Technical Summary/小结

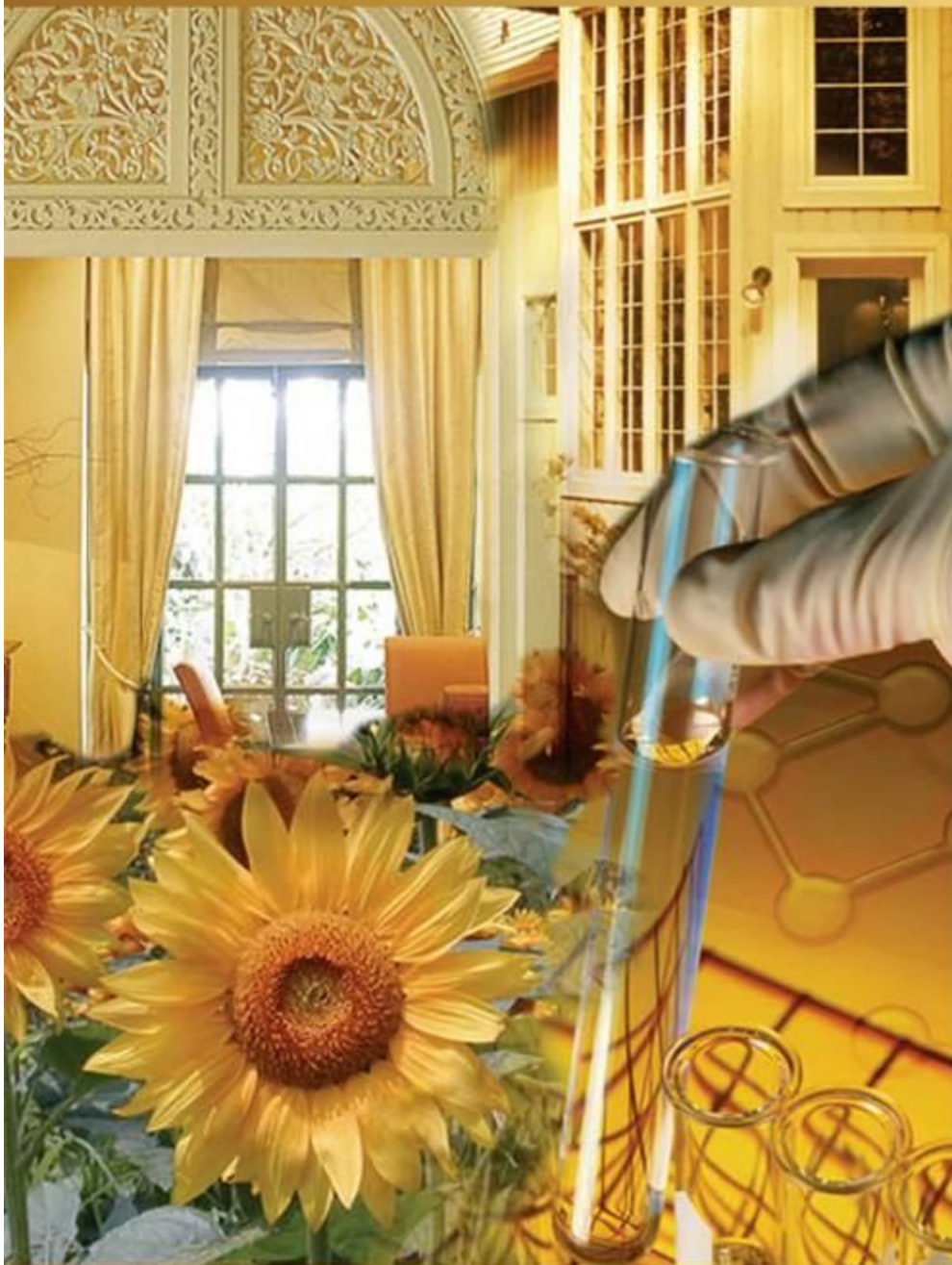
- ▶ **More Effective Dispersant for Organic Pigments and Carbon Black in waterborne system/特别适合有机颜料和碳黑**
- ▶ **Pretty Low Foaming Property/良好的低起泡性能**
- ▶ **Provides Improved Color Development With Organic Pigments at Low Use Levels/较低添加量时，提供优异的展色性能**
- ▶ **High Dispersion Efficiency Allowing for Increased Pigment Loading/较高的分散效率可允许较高的颜料含量**
- ▶ **Excellent Dispersion Stability/优异分散稳定性能**
- ▶ **Can be Used to Produce Binder Free, Stable Color Concentrates/能用来制备无树脂色浆**



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Troy Performance Additives for Waterborne Wood Coatings/小结

Products/产品	Description/组成描述	Feature & Application/特点与应用
Troysol® LAC	Anionic Surfactant/ 阴离子表面活性剂, 50%	Surface tension reduction strongly, color development, leveling improvement/强烈降低动态表面张力, 提升涂料的展色性能, 改善或避免浮色发花现象出现,提升漆膜流平性能
Troysol® ZLAC	Anionic Surfactant/ 阴离子表面活性剂, 50%	Surface tension reduction, color development, leveling improvement, NO VOC, APEO free/强烈降低动态表面张力, 提升涂料的展色性能, 改善或避免浮色发花现象出现,改善漆膜流平性能, 不含VOC, 不含APEO
Troysol® 382	Diol Surfactants, 100%	Low dynamic surface tension, improve leveling and low foam contribution, suitable for Industrial coatings & Inks, NO VOC, APEO free/较低的动态表面张力, 提升润湿性能, 低起泡性能, 不含VOC和APEO
Troysol® Z370	Siloxane Co-Polymer/ 聚硅氧烷共聚物,100%	Eliminates film defects , Improves surface flow & leveling, Increases surface slip, abrasion and mar resistance, Block resistance; Low foam contribution; Excellent clarity, NO VOC, APEO free/改善漆膜缺陷、提升流动流平, 改善清爽与耐刮擦伤性能, 良好的耐粘性能与低起泡性能
Troypersperse ZWD1	100% active pigment dispersant /100%颜料分散剂	VOC free for use in green systems/不含VOC, Use for Carbon Black and Organic pigments/特别适合碳黑和有机颜料, Fast dispersion time, excellent dispersion stability/快速分散, 优异分散稳定性. Excellent color development, High pigment loadings/优异的展色性, 可允许高颜料含量



High performance Troykyd
D209W in Controlling
Micro/Macro Foams in
waterborne wood Coatings

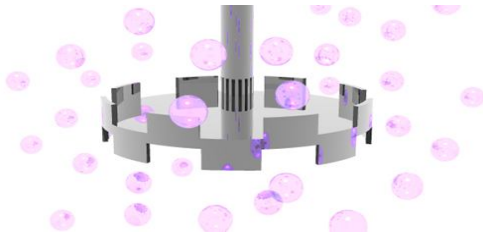
/高效消泡剂Troykyd D209W
在水性木器涂料中的应用



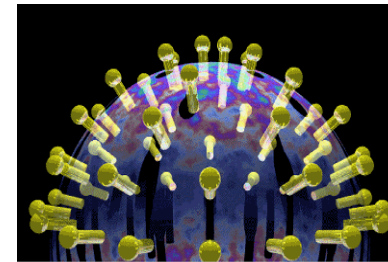
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2 Main Types of Foam Control Agents / 主要类型

- ▶ **Grind Defoamer (antifoam)/抑泡剂**
- ▶ **How does it work? / 工作原理**
 - ▶ Prevent foam problems by weakening foam at the source of foam creation/



- ▶ **Defoaming Additive/消泡剂**
- ▶ **How does it work?**
 - ▶ Low Surface Tension/较低表面张力
 - Displace stabilizer
 - ▶ Capable of Spreading/扩散能力
 - Thins bubble wall/使泡沫层变薄
 - ▶ Low Solubility/较低的溶解性
 - Penetrates bubble wall and burst the bubble/穿透泡沫层而破泡



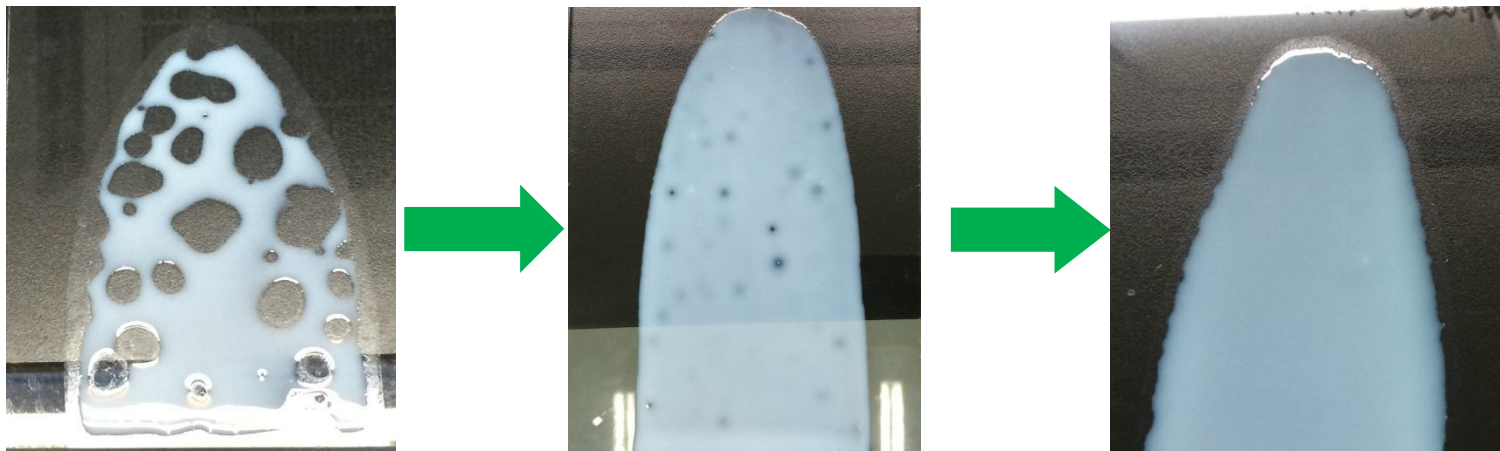
Some defoamers are used as both antifoam/defoamer



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Cratering Issue? / 鱼眼、缩孔?

- ▶ 如何获得高效抑泡的同时不影响漆膜的流平性能、光泽、雾影、透明性?





Troykyd[®] D209W
What It Is



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Troykyd® D209W

What It Is

- ▶ **A Solvent-Free Foam Control Agent/Defoamer for Aqueous Systems/水性消泡剂**
 - ▶ Eliminates foam in both process and application/优异的抑泡能力
 - ▶ Does not contribute VOC to aqueous systems/无VOC
- ▶ **Supplied as an Emulsion of Modified Silicones/改性有机硅乳液**
- ▶ **Highly Compatible/优异的相容性**
- ▶ **FDA Compliant/符合相关的FDA认证**
 - ▶ **175.105 & 176.210**



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Troykyd® D209W Performance Benefits/特点

- ▶ Prevents Micro- and Macro-foam/防止微泡
- ▶ Highly Compatible, Minimized Surface Defects/优异的相容性，较少的表面缺陷
- ▶ Effective in Spray Applications/适合喷涂体系
- ▶ Effective in Clear and Pigmented Systems/适合清漆体系和实色漆
- ▶ Minimal Effect on Gloss and Clarity/对光泽和清晰度较少影响
- ▶ Excellent Long-Term Stability (Persistence)/优异的长期储存稳定性能



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Recommended Applications for Troykyd D209W

- **High Gloss Aqueous Wood Finishes/高光水性木器涂料**
 - ▶ Clear and pigmented/清漆或色漆
- **Spray Applied Coating Systems/喷涂涂料体系**
 - ▶ Architectural/建筑
 - ▶ Industrial/工业
- **Aqueous Ink and Over Print Varnishes (OPVs)/水墨**
- **Aqueous Adhesives/水性胶粘剂**
 - ▶ Pressure Sensitive Adhesives (PSAs)/压敏胶
 - ▶ Spray applied industrial adhesives/工业用胶粘剂
- **Aqueous Leather Coatings/水性皮革涂料**
 - ▶ Natural & synthetic/真皮或合成革

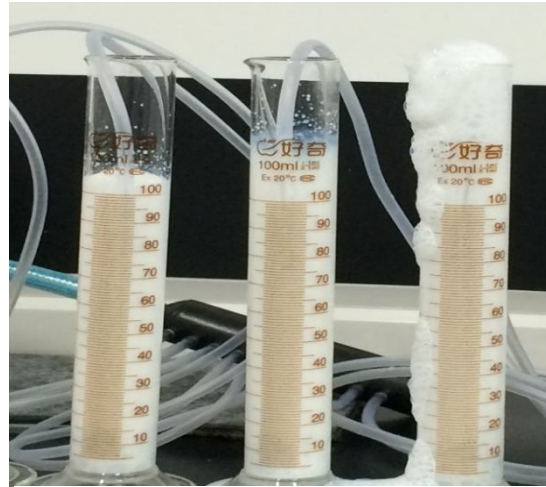


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Troykyd[®] D209W: 鼓泡测试

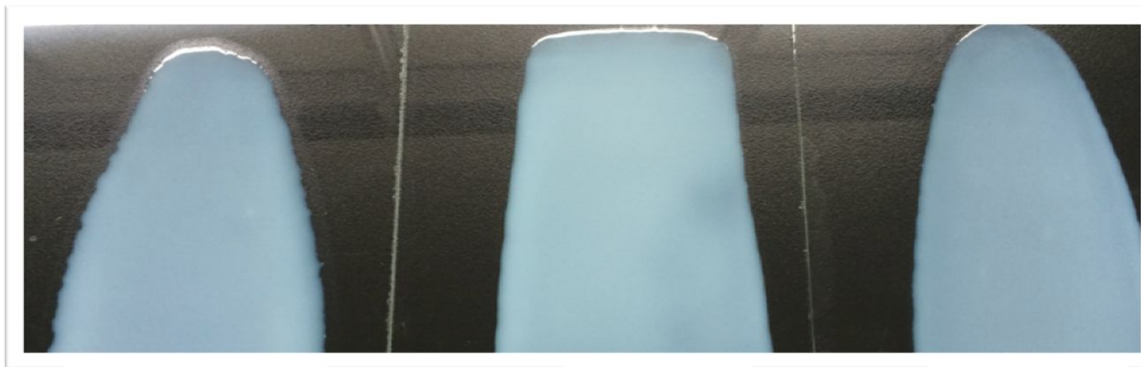
2K WB Polyurethane Clear System(Bayer)

双组分聚氨酯体系,0.3%wt



T-209W Com. 1 Com. 2

在双组分聚氨酯体系中，
通过强力鼓泡测试时，
表现出极佳的抑泡性能



T- D209W

Com1.

CON Com 2.

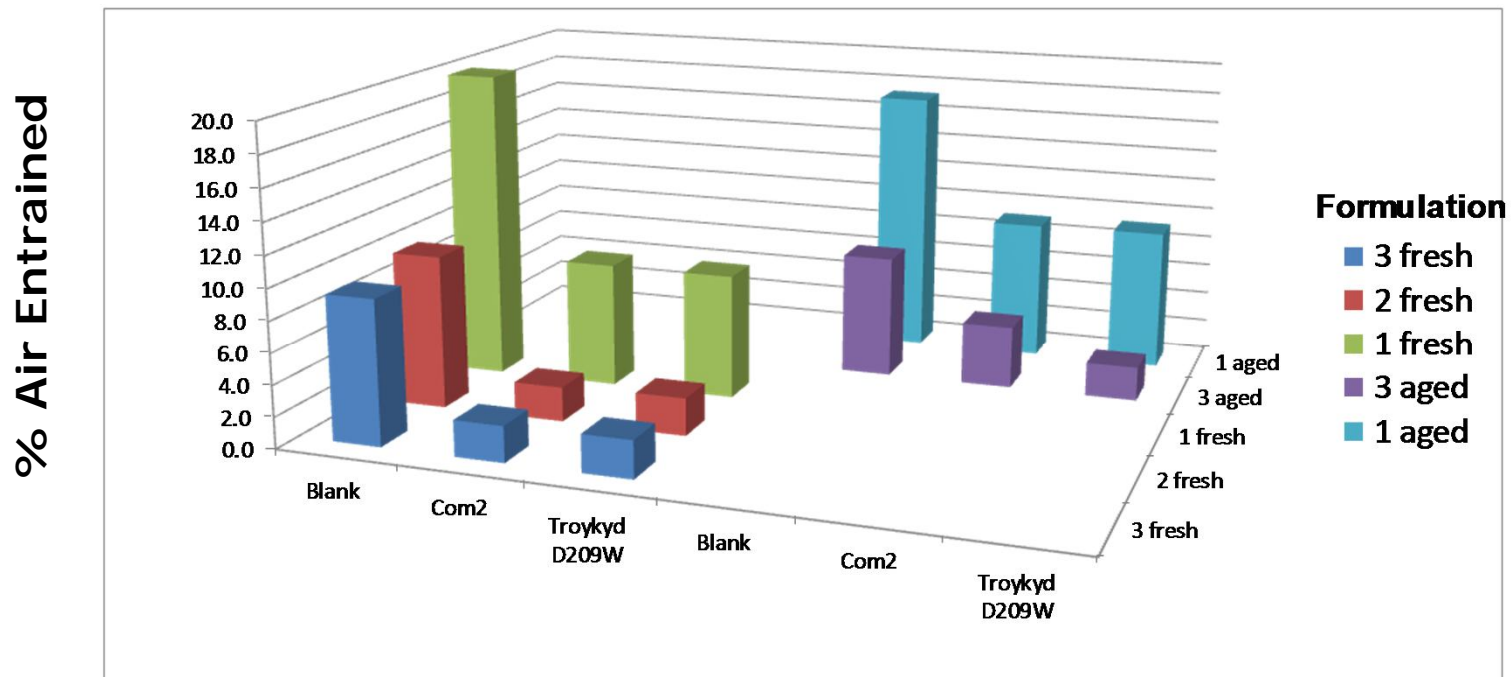
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Troykyd[®] D209W: 震荡法测试

Hanover: Paint Shaker Test Method / 震荡法测试 (0.5%wt)



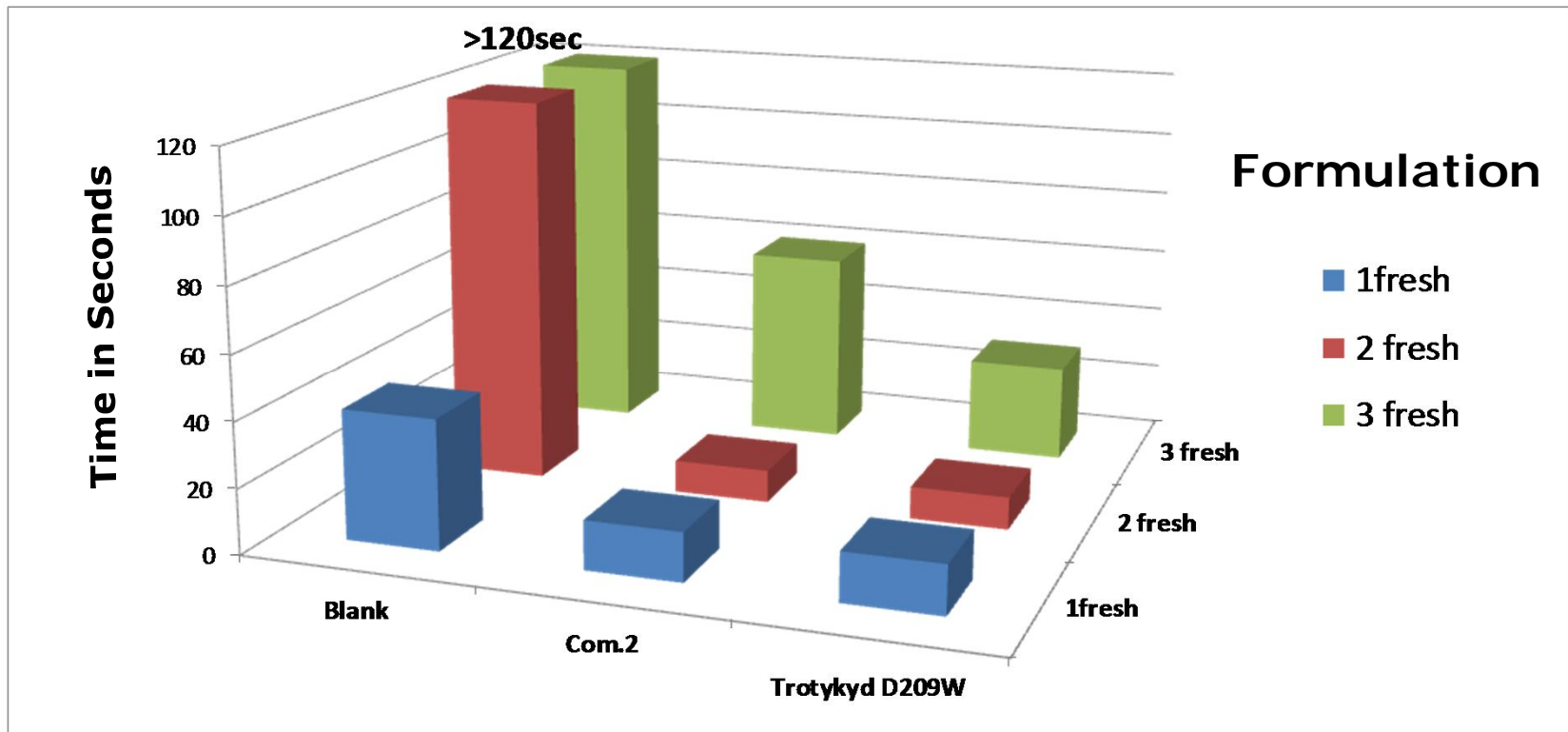
Troykyd D209W表现出优异的抑泡性能，同时表现更佳的热储存稳定性能



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Troykyd[®] D209W: 滚涂测试

Hanover: Defoaming Efficacy Roller Test /滚涂测试, 0.5%wt



滚涂测试Troykyd D209W表现极佳的破泡速度

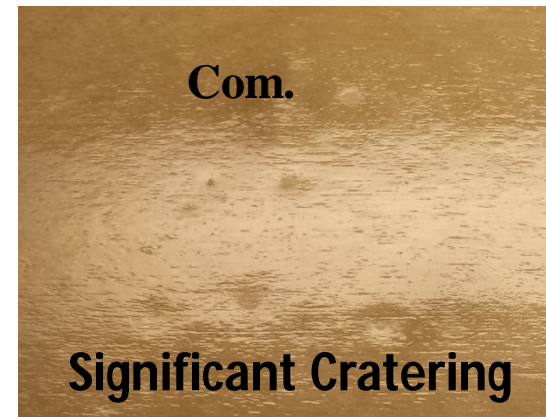


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Troykyd® D209W: 喷涂测试

Spray Application Foam, Florham Park

/喷涂测试



Troykyd D209W was effective in eliminating Macro & Micro Foam in 1K PU Wood Coating with no surface defects at 0.25% defoamer on formulation weight. Com. exhibited severe surface defects./

Troykyd D209W在水性工业木器涂料中，通过喷涂施工测试时，表现很好的破微泡性能。



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Waterborne Wood Coatings /水性木器涂料消泡剂

Aqueous Defoamers /水性消泡抑泡剂

INCORPORATION:
Only in the Grind/研磨阶段

INCORPORATION:
Grind or Let-down/研磨及后
添加

**Traditional
Troykyd D235**

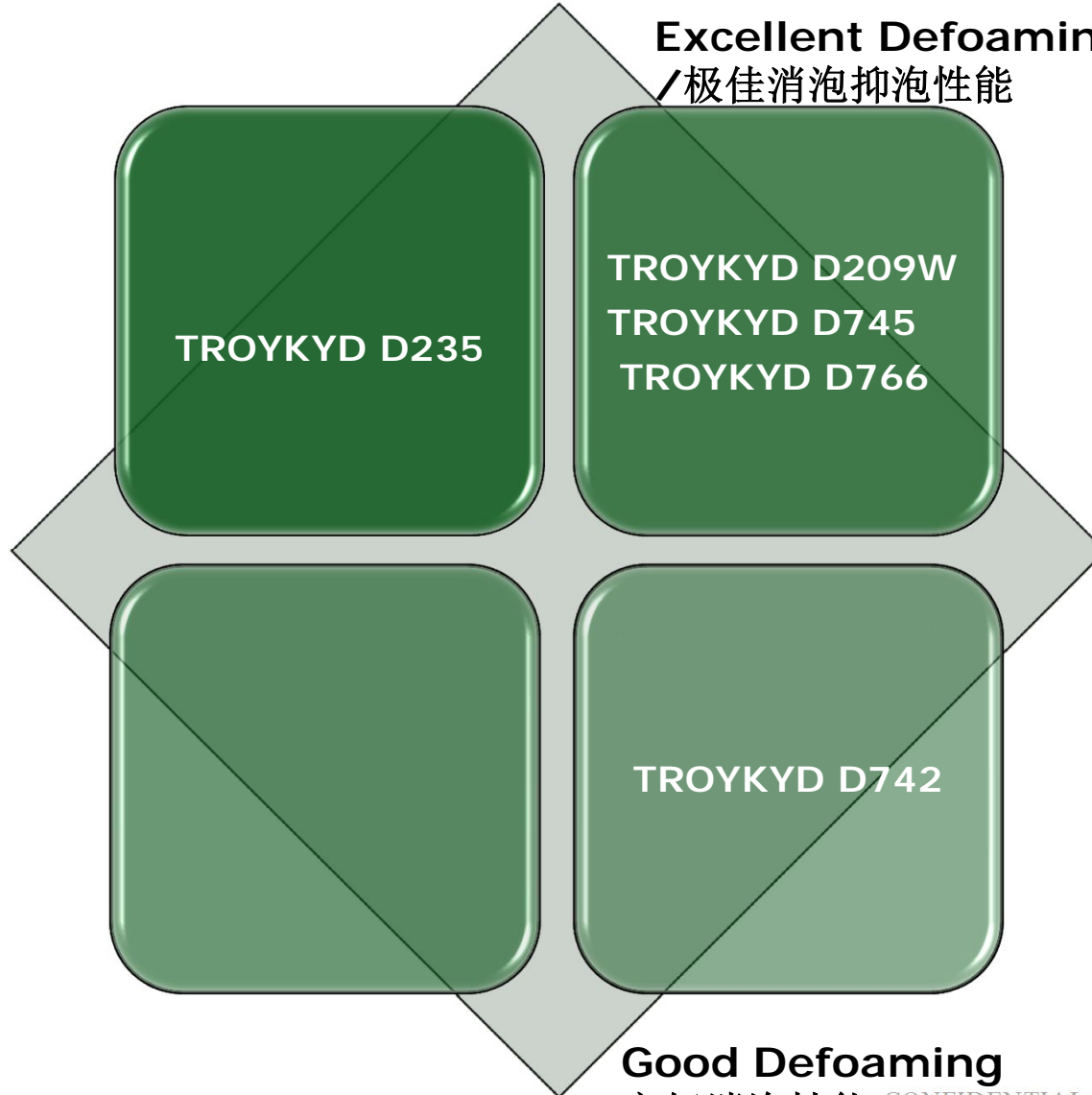
High Performance/高端
(Clears, High gloss, Micro-foam)
Troykyd D742,
Troykyd D745,
Troykyd D766,
Troykyd D209W (New)



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Waterborne Wood Coatings Selection Guide/应用指南

**Good/较弱
Compatibility
/相容性**



**Excellent Defoaming
/ 极佳消泡抑泡性能**

**Excellent/优异
Compatibility
/ 相容性**

**Good Defoaming
/ 良好消泡性能**

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Troy Performance Additives for Waterborne Wood Coatings/小结

Products/产品	Description/组成描述	Feature & Application/特点与应用
Troykyd® D209W (New)	Siloxane in water/有机硅氧烷	Effective in elimination of micro-foam, no reduction in gloss, superior persistence, Usable in grind and let-down phases, suitable for Inks, Industrial Coatings, No APE, No HAPS, No VOC's/绿色环保, 优异的抑泡性能, 较少的漆膜缺陷, 超强的耐久性能, 适合于研磨阶段添加或后添加, 不含VOC和APEO
Troykyd® D742	Blend of Polyglycols and Silicones/聚醇与有机硅混合物, 100%	Effective in High Gloss and Clear Systems, Excellent Persistence, No Contribution to Surface Defects, Little or No Effect on Gloss, No APE, No HAPS, No VOC's/绿色环保, 适合于高光泽和透明涂料体系, 优异的持久性能, 对漆膜缺陷无影响, 对光泽较少影响, 不含VOC或APEO
Troykyd® D766	聚醇类消泡剂, 乳化型	极佳的水分散性能, 极佳的消泡能力, 不影响漆膜的流平性能, 优异的体系相容性能和储存稳定性能, 前后添加均可
Troykyd® D745	Siloxane in water/有机硅氧烷, 60%	Effective in elimination of micro-foam, Minimal or no reduction in gloss, superior persistence, Usable in grind and let-down phases, suitable for Inks, Industrial Coatings, No APE, No HAPS, No VOC's/绿色环保, 优异的抑泡性能, 较少的漆膜缺陷, 超强的耐久性能, 适合于研磨阶段添加或后添加, 不含VOC和APEO



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Troy Additives for Waterborne Wood Coatings Primer/木器底漆

Primer/底漆	Products/产品	Description/组成描述	Feature & Application/特点与应用
Substrate Wetting Agent/底材润湿	Troysol® LAC	Anionic Surfactant/阴离子表面活性剂, 50%	Surface tension reduction strongly, color development, leveling improvement/强烈降低动态表面张力, 提升涂料的展色性能, 改善或避免浮色发花现象出现,提升漆膜流平性能
	Troysol® ZLAC	Anionic Surfactant/阴离子表面活性剂, 50%	Surface tension reduction, color development, leveling improvement, NO VOC, APEO free/强烈降低动态表面张力, 提升涂料的展色性能, 改善或避免浮色发花现象出现,改善漆膜流平性能, 不含VOC, 不含APEO
	Troysol® 382	Diol Surfactants, 100%	Low dynamic surface tension, improve leveling and low foam contribution, suitable for Industrial coatings & Inks, NO VOC, APEO free/较低的动态表面张力, 提升润湿性能, 低起泡性能, 不含VOC和APEO
Defoamer/消泡抑泡	Troykyd® D209W (New)	Siloxane in water/有机硅氧烷	Effective in elimination of micro-foam, no reduction in gloss, superior persistence, Usable in grind and let-down phases, suitable for Inks, Industrial Coatings, No APE, No HAPS, No VOC's/绿色环保, 优异的抑泡性能, 较少的漆膜缺陷, 超强的耐久性性能, 适合于研磨阶段添加或后添加, 不含VOC和APEO
	Troykyd® D766	聚醇类消泡剂, 乳化型	极佳的水分散性能, 极佳的消泡能力, 不影响漆膜的流平性能, 优异的体系相容性能和储存稳定性能, 前后添加均可



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Troy Additives for Waterborne Wood Clear Top Coating/木器清漆面涂

Clear Top Coating/清漆面漆	Products/产品	Description/组成描述	Feature & Application/特点与应用
Substrate Wetting Agent/底材润湿	Troysol® 382	Diol Surfactants, 100%	Low dynamic surface tension, improve leveling and low foam contribution, suitable for Industrial coatings & Inks, NO VOC, APEO free/较低的动态表面张力, 提升润湿性能, 低起泡性能, 不含VOC和APEO
	Troysol® Z370	Siloxane Co-Polymer/聚硅氧烷共聚物, 100%	Eliminates film defects, Improves surface flow & leveling, Increases surface slip, abrasion and mar resistance, Block resistance; Low foam contribution; Excellent clarity, NO VOC, APEO free/改善漆膜缺陷、提升流动流平, 改善滑爽与耐刮擦伤性能, 良好的耐粘性能与低起泡性能
Defoamer/消泡抑泡	Troykyd® D209W (New)	Siloxane in water/有机硅氧烷	Effective in elimination of micro-foam, no reduction in gloss, superior persistence, Usable in grind and let-down phases, suitable for Inks, Industrial Coatings, No APE, No HAPS, No VOC's/绿色环保, 优异的抑泡性能, 较少的漆膜缺陷, 超强的耐久性性能, 适合于研磨阶段添加或后添加, 不含VOC和APEO
	Troykyd® D742	Blend of Polyglycols and Silicones/聚醇与有机硅混合物, 100%	Effective in High Gloss and Clear Systems, Excellent Persistence, No Contribution to Surface Defects, Little or No Effect on Gloss, No APE, No HAPS, No VOC's/绿色环保, 适合于高光泽和透明涂料体系, 优异的持久性能, 对漆膜缺陷无影响, 对光泽较少影响, 不含VOC或APEO
	Troykyd® D745	Siloxane in water/有机硅氧烷, 60%	Effective in elimination of micro-foam, Minimal or no reduction in gloss, superior persistence, Usable in grind and let-down phases, suitable for Inks, Industrial Coatings, No APE, No HAPS, No VOC's/绿色环保, 优异的抑泡性能, 较少的漆膜缺陷, 超强的耐久性性能, 适合于研磨阶段添加或后添加, 不含VOC和APEO



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Troy Additives for Waterborne Wood Pigmented Top Coating/木器实色面涂

Clear Top Coating/ 清漆面漆	Products/产品	Description/组成描述
Substrate Wetting Agent/底材润湿	Troysol® 382	Diol Surfactants, 100%
	Troysol® Z370	Siloxane Co-Polymer/聚硅氧烷共聚物, 100%
Anti-flocculation/ 抗浮色发花	Troysol® ZLAC	Anionic Surfactant/阴离子表面活性剂, 50%
Dispersants/颜料分散剂	Troypersperse ZWD1	100% active pigment dispersant /100%颜料分散剂
Defoamer/消泡抑泡	Troykyd® D209W (New)	Siloxane in water/有机硅氧烷
	Troykyd® D745	Siloxane in water/有机硅氧烷, 60%



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Troy Additives for Waterborne Colorants/木器色浆与擦色体系

Clear Top Coating/ 清漆面漆	Products/产品	Description/组成描述
Substrate Wetting Agent/底材润湿	Troysol® 382	Diol Surfactants, 100%
	Troysol® LAC/ZLAC	Anionic Surfactant/阴离子表面活性剂, 50%
Anti-flocculation/ 抗浮色发花	Troysol® LAC/ZLAC	Anionic Surfactant/阴离子表面活性剂, 50%
Dispersants/颜料分散剂	Troysperse ZWD1	100% active pigment dispersant /100%颜料分散剂
	Troysperse 90W	Anionic Pigment Dispersant/ 阴离子表面活性剂
Defoamer/消泡抑泡	Troykyd® D209W	Siloxane in water/有机硅氧烷



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China Coat: E4 D63-68

Thank you!

<http://www.troycorp.com>

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