



巴德富公司
BATF Industrial Co.,Ltd.

巴德富推动全球水性化 利他之心惠泽天下

Promote The Transformation of Global
Waterborne Coatings



Next Generation in Self Cleaning 新一代自清潔技術



TO BE A WORLD-RESPECTED CHEMICAL ENTERPRISE



01 December 2016
Bobby Kanji - CTO & VP
Sophie Liu – R&D Manager

Presentation Overview內容介紹

- Background背景
- Why Self Cleaning?為什麼是自清潔？
- What's different? 有哪些不同？
- Introducing BATF-8687介紹BATF-8687
- What's Next? 接下來有什麼？

Why Self Cleaning ? 為什麼是自清潔

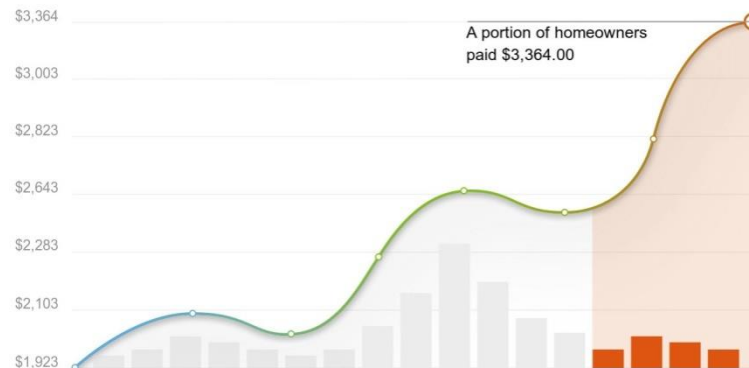


“ Increased focus on Health and Safety ” 更加關注健康與安全

Why Self Cleaning ?為什麼是自清潔

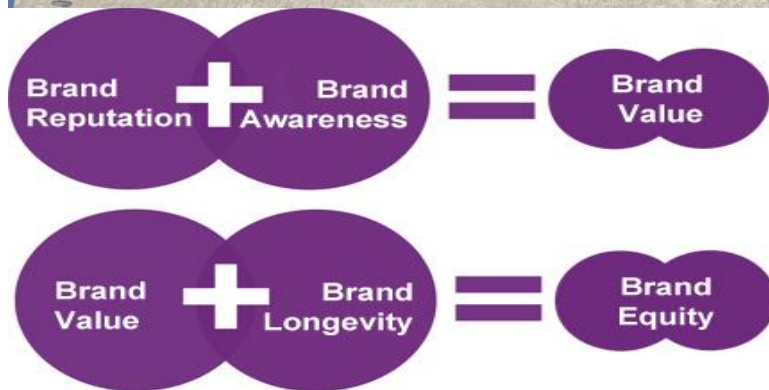


巴德富公司
BATF Industrial Co.,Ltd.



“ Increased focus on Health and Safety ”更加關注健康與安全

Why Self Cleaning ?為什麼是自清潔



“ Long lasting appearance & value ”更持久的外觀和價值

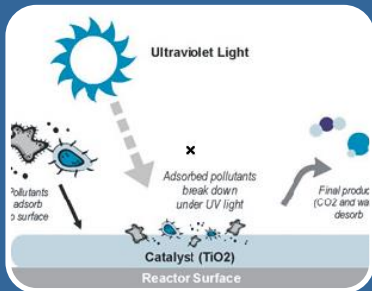


Photo-catalytic 光催化

- Organic, oxidizable and microbial contaminants are degraded by light on a suitable catalyst
- 有機的、氧化物和微生物的污染物在適當的催化劑下進行光分解



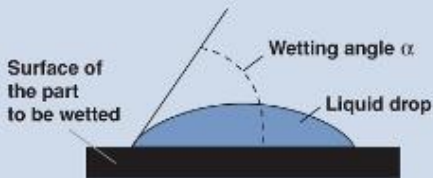
Super-hydrophobic 超疏水

- Surface is very hydrophobic forming water beads which carry dirt as they roll off the surface
- 表面超疏水形成水珠可以帶走髒物

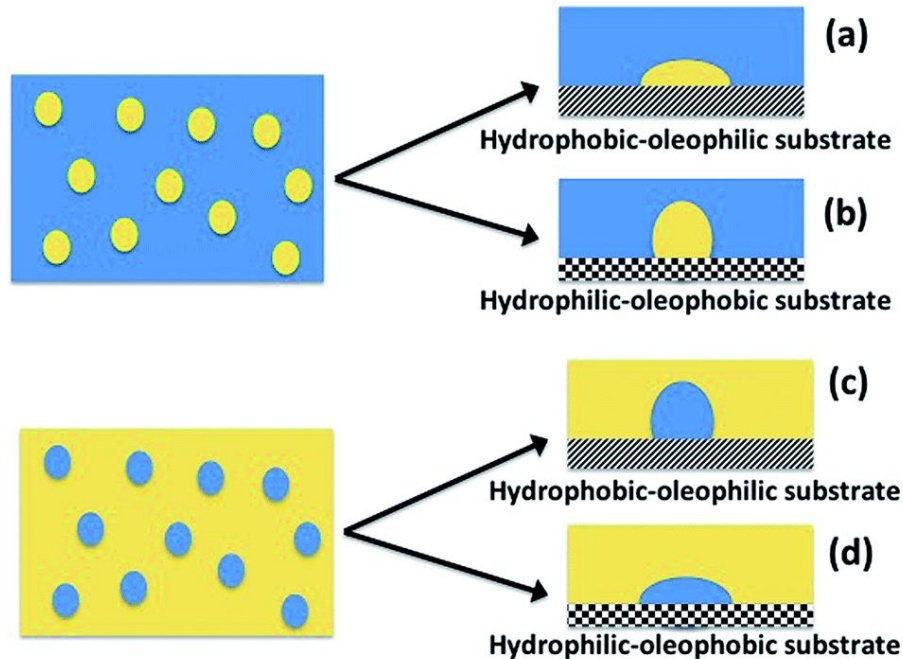
“ Limitations with Current Technologies ” 現有技術的局限性

	Hydrophilic親水的	Hydrophobic 疏水的
Oleophilic 親油的	GAP ??差距	
Oleophobic 疏油的	Active TiO2 – Photocatalysis 活性二氧化鈦——光催化	Silicone Polymers 矽聚合物 F-based Solutions 溶液

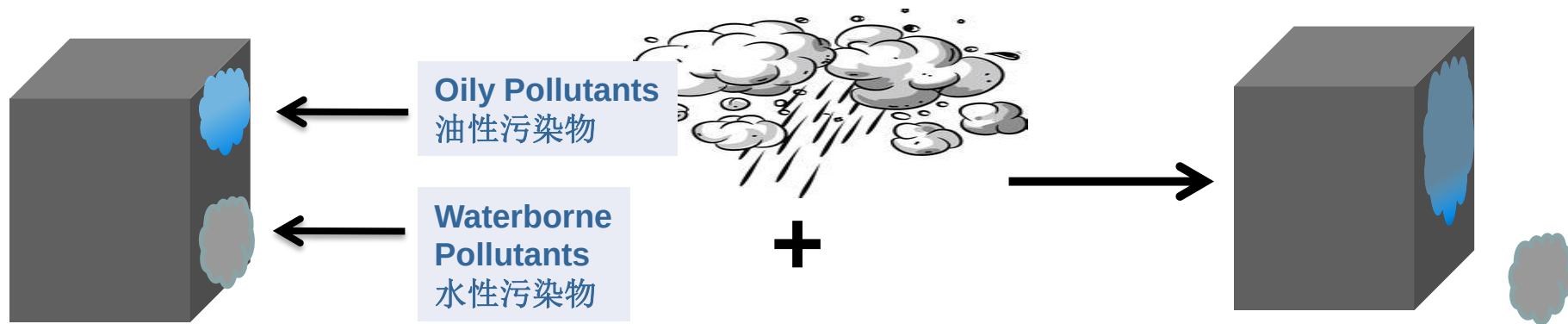
“Advances in Technology” 技術的先進性



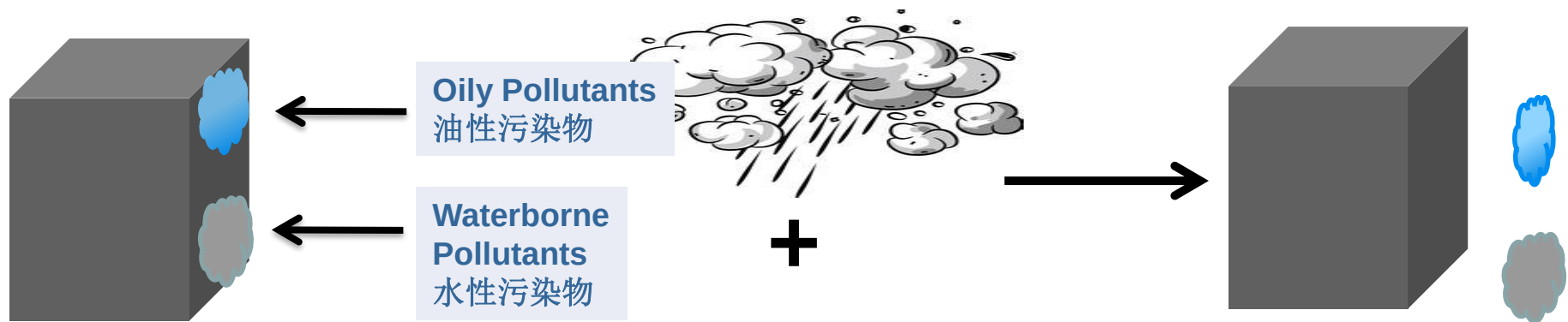
$\alpha = 0^\circ$		Spreading
$\alpha < 90^\circ$		Good wetting
$\alpha = 90^\circ$		Incomplete wetting
$\alpha > 90^\circ$		Incomplete wetting
$\alpha > 180^\circ$		No wetting



“ Self Cleaning for Water & Oily Dirt ”對水和油性污漬可自清潔



“ Water & Oily Dirt ”水和油性污漬



“ Water & Oily Dirt ”水和油性污漬

Self-cleaning emulsion design ideas (Contact angle of water)

自清潔乳液設計思路(水的接觸角)



Silicone-acrylic emulsion
矽丙乳液

Self-cleaning emulsion
自清潔乳液

Pure acrylic emulsion
純丙乳液

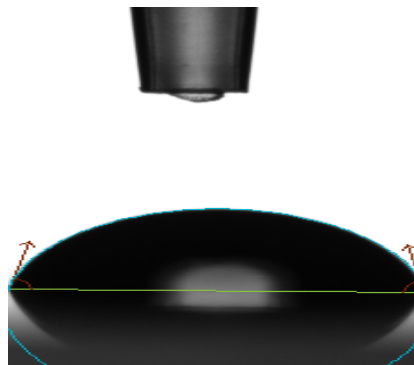
“ Water & Oily Dirt ”水和油性污漬

Self-cleaning emulsion design ideas (Contact angle of Oil)

自清潔乳液設計思路(油的接觸角)



Silicone-acrylic emulsion
矽丙乳液



Self-cleaning emulsion
自清潔乳液



Pure acrylic emulsion
純丙乳液

“ Water & Oily Dirt ”水和油性污漬

BATF has developed a series of ultra-dirt-resistant emulsion polymers, which are based on the unique “**Surface Super-Hydrophilic Patented Technology**” providing the balance of today's performance needs. Compared to conventional emulsion polymers, the super hydrophilic properties lead to the film having excellent dirt pick resistance. At the same time, the internal hydrophobicity of particles ensures that the coating has a lower water absorption and excellent water resistance.

BATF巴德富公司研發出一系列的超耐沾汙性乳液，這是採用獨有的表面Sup-hydro（超親水）專利技術研製而成的親水聚合物。相比于普通的乳液，乳液因其表面超親水的性質賦予了塗膜極為優異的耐沾汙性能。同時由於粒子內部的疏水性，確保了塗膜具有較低的吸水率以及優異的耐水和耐水白性。



“Continually developing New Technology Platforms” 持續地開發新的技術平臺

Introducing BATF-8687 - Self Cleaning for Textured Coatings

自清潔質感塗料乳液BATF-8687



Fitness for Use Criteria 適用使用標準	Appearance 表現
Regulatory法規	APEO / Formaldehyde Free
Solids Content (%)固含量	46 ± 1%
pH	7-9
Viscosity (cps) 粘度	3000-8000 cps
MFFT 最低成膜溫度	30
Particle Size 粒子直徑	100 – 120 nm

Introducing BATF-8687 - Self Cleaning for Textured Coatings



Value 價值	Property 性能	Structure 基材
Superior Dirt Pick Up Resistance Weathering, Durability, Non Yellowing 超耐沾汙、耐候性、耐久性及耐黃變	Pure Acrylic, Optimised Hydrophilic / Hydrophobic balanced polymer, High Tg, Particle Size and distribution 純丙，最佳的親水性、疏水性平衡，高Tg， 粒子大小和分佈	Core Shell, Acrylate hard monomers, crosslinking, fast releasing coalescent 核殼、硬單體、交聯、快速釋放的成膜助劑
Vivid uniform distinctive texture and appearance 獨特生動一致的質感和外觀		
Excellent Adhesion & Bond Strength 優異的附著力和粘接強度	Functional Additives, Particle Size and distribution 功能助劑，粒子大小和分佈	Specific functional additives targeting adhesion to sand and stone, polymerization process 針對砂子和石頭粘著有特定的功能助劑和聚 合過程
Performance better than a texture basecoat / clear topcoat system 性能更優於質感漆/清漆罩面體系	Polymer composition, morphology and application understanding 聚合物組成，形態和應用理解	

“ Delivering long term Exterior Performance without the need of a Clearcoat “
無需罩面並提供長期高性能

Introducing BATF-8687 - Self Cleaning for Textured Coatings

自清潔質感塗料乳液BATF-8687



Ingredient 成分	Trade Name	Quantity
Base Formulation 基礎配方		
Water 水	Water	292
Additives 助劑	250HBR	88
Titanium Dioxide 二氧化鈦	R-996	50
Extenders 填充劑	MS-800	120
Polymer 聚合物	Emulsion乳液	450
	Total	1000
Texture Formulation 質感配方		
Base Formulation 基礎配方		350
30-50 mesh sand目砂		550
70 mesh sand目砂		100
	Total	1000



BATF-8687



Industry Standard行業標準

準

BATF-8687 is able to create a stronger distinctive uniform texture as a result of more optimum balance of the film formation variables

BATF-8687可以更好地平衡成膜過程中的變數來可獲得更有特色一致的質感塗料。

“ Distinctive Uniform Appearance “具有特色一致外觀

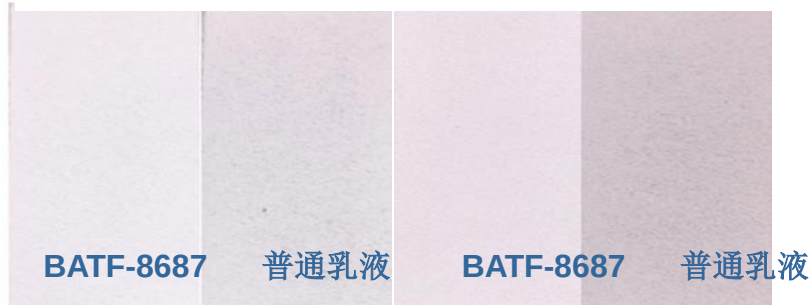
Company Confidential

Introducing BATF-8687 - Self Cleaning for Textured Coatings

自清潔質感塗料乳液BATF-8687

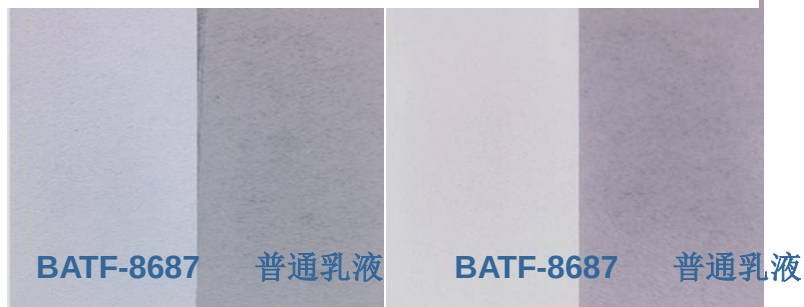
First Cycle

Second Cycle

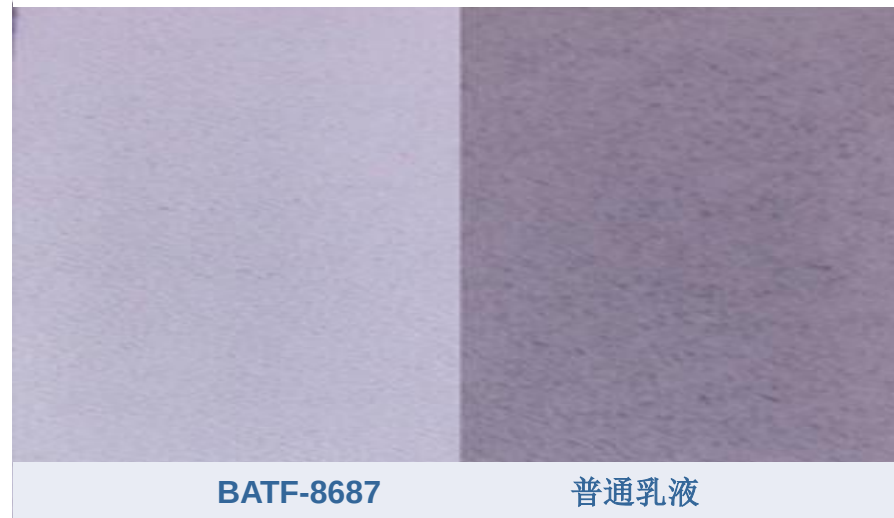


Third Cycle

Forth Cycle



Fifth Cycle第五個迴圈



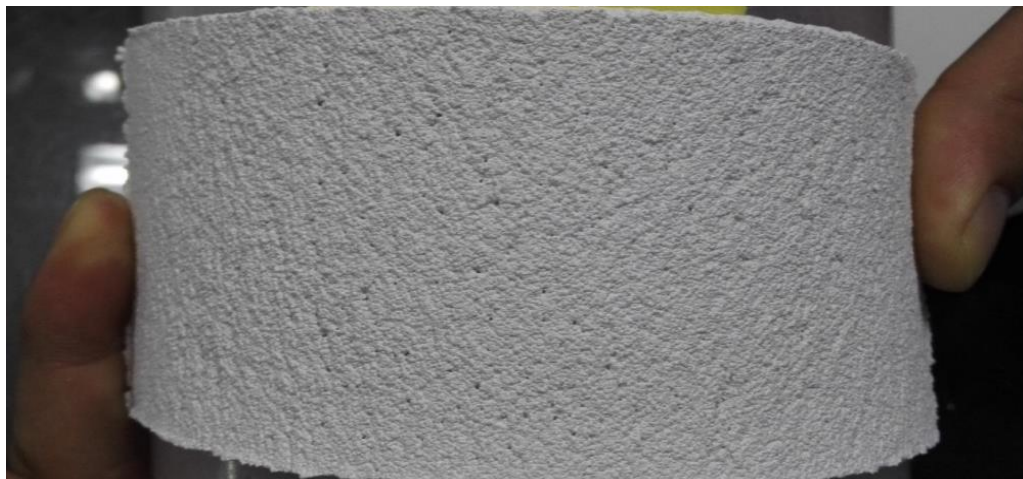
“ Showing positive performance even after 5 Cycles “5個迴圈後性能優異

Introducing BATF-8687 - Self Cleaning for Textured Coatings

自清潔質感塗料乳液BATF-8687

BATF-8687 has excellent crack resistance at 100 mm curvature diameter even though its not designed to be flexible

BATF-8687質感漆在直徑為100mm的曲率直徑下，表現優異，沒有裂紋。



“ Hard but still has Flexibility “硬且有柔韌性

Introducing BATF-8687 - Self Cleaning for Textured Coatings

自清潔質感塗料乳液BATF-8687



Test item測試項目		Test standard測試標準	BATF-8687	Industry Benchmarks對比
施工性 Application Ease		施工無障礙 Accessible	易施工 Easy	易施工 Easy
低溫貯存穩定性 low temperature storage stability		穩定 Stable	穩定 Stable	穩定 Stable
熱貯存穩定性（7d） Heat storage stability		穩定 Stable	無異常 No abnormalities	無異常 No abnormalities
熱貯存穩定性（14d） Heat storage stability		穩定 Stable	無異常 No abnormalities	無異常 No abnormalities
初期乾燥抗裂性 Initial dry cracking resistance		無裂紋 No crack	無裂紋 No crack	無裂紋 No crack
低溫高濕耐水白 Low temperature and high humidity Water resistance		無泛白 No white	無泛白 No white	無泛白 No white
抗泛鹽鹼性 Alkali resistance		鐵藍無變黃 Iron blue without yellowing	鐵藍無變黃without yellowing	鐵藍無變黃 without yellowing
粘結強度Bond strength	常規養護 Routine	≥0.7	1.32	1.34
	浸水後 Soaking	≥0.5	0.87	0.79
耐沾汙性dirt resistance （灰卡，評級）	2次循 twice cycles	五次迴圈≤2級 five cycles≤2	1	2-3
	5次迴圈five cycles		1-2	4



Stone Paint 真石漆



Elastomeric 彈性

“ Expanding the Platform ” 技術平臺的延伸