



Wanhua building materials solutions

*Wanhua Chemical Group Co., Ltd.
Emerging Technology Business Group
Feb.,2021*

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1978-1983

Yantai Wanhua synthetic
Leather Factory



2003-2005

Wanhua Ningbo
Industrial Park



2011-2015

Wanhua Yantai
Industrial Park



2017

Wanhua Zhuhai
Industrial Park



1998-2001

Yantai Wanhua Polyurethanes Co., Ltd.
Shareholder restructure (code 600309)



2011

Acquire BorsodChem
via a 1.26bn Euro M&A deal



2013

Wanhua Chemical Group
Co., Ltd

Italy: BorsodChem Italia s.r.l.

Czech: BorsodChem MCHZ, s.r.o.

The USA: Yantai Wanhua America Co., Ltd.

The USA: Wanhua Chemical US Holding Inc.

Brazil: Wanhua BorsodChem Latin America
Assessoria comercial Ltda.

Turkey: BorsodChem (Turkey) office

Hungary: BorsodChem Zrt.

Russia: Wanhua BorsodChem (Russia) Co., Ltd.

Japan: Wanhua Chemical Japan Co., Ltd.

South Korea: Wanhua Chemical
(South Korea) office

India: Wanhua International (India)
Private Limited

The UAE: Wanhua Chemical (The UAE) office





- Global distributed, worldwide scale and with integrated supply chain
- Leading position in the global isocyanate industry. Also coordinated by polyol products

- ✓ MDI
- ✓ TDI
- ✓ Flexible foam polyol
- ✓ Rigid foam polyol
- ✓ Polyester Polyol
- ✓ MDI Variant



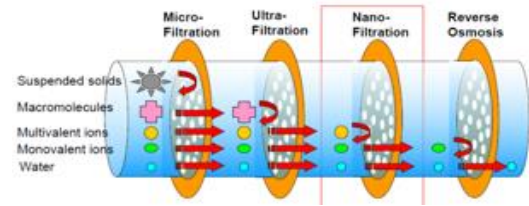
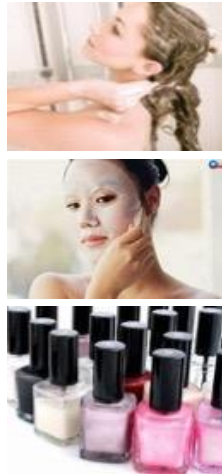
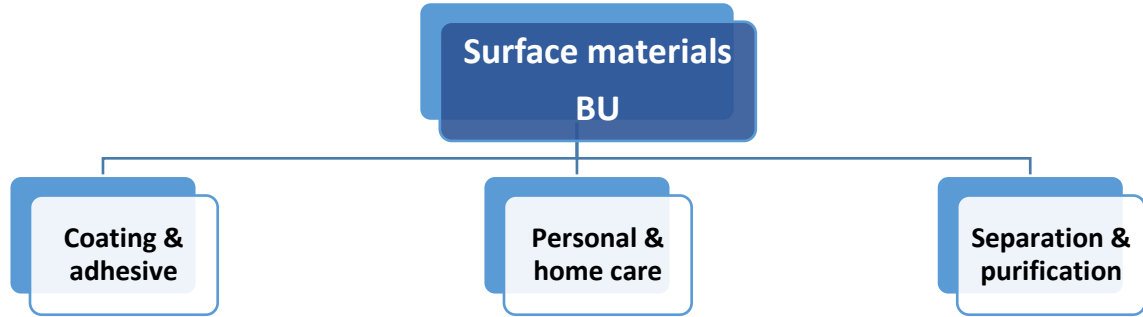
- World-class PDH plant, PO/MTBE and ethylene cracking plant
- Focusing on C3/C4 product chain
- Prioritize products that have collaborative effects with PU

- | | |
|-------------|------------|
| ✓ Propylene | ✓ MMA |
| ✓ PO | ✓ Ethylene |
| ✓ PP | ✓ Styrene |
| ✓ MTBE | ✓ HDPE |
| ✓ AA+AE | ✓ LLDPE |
| ✓ Butanol | ✓ PVC |

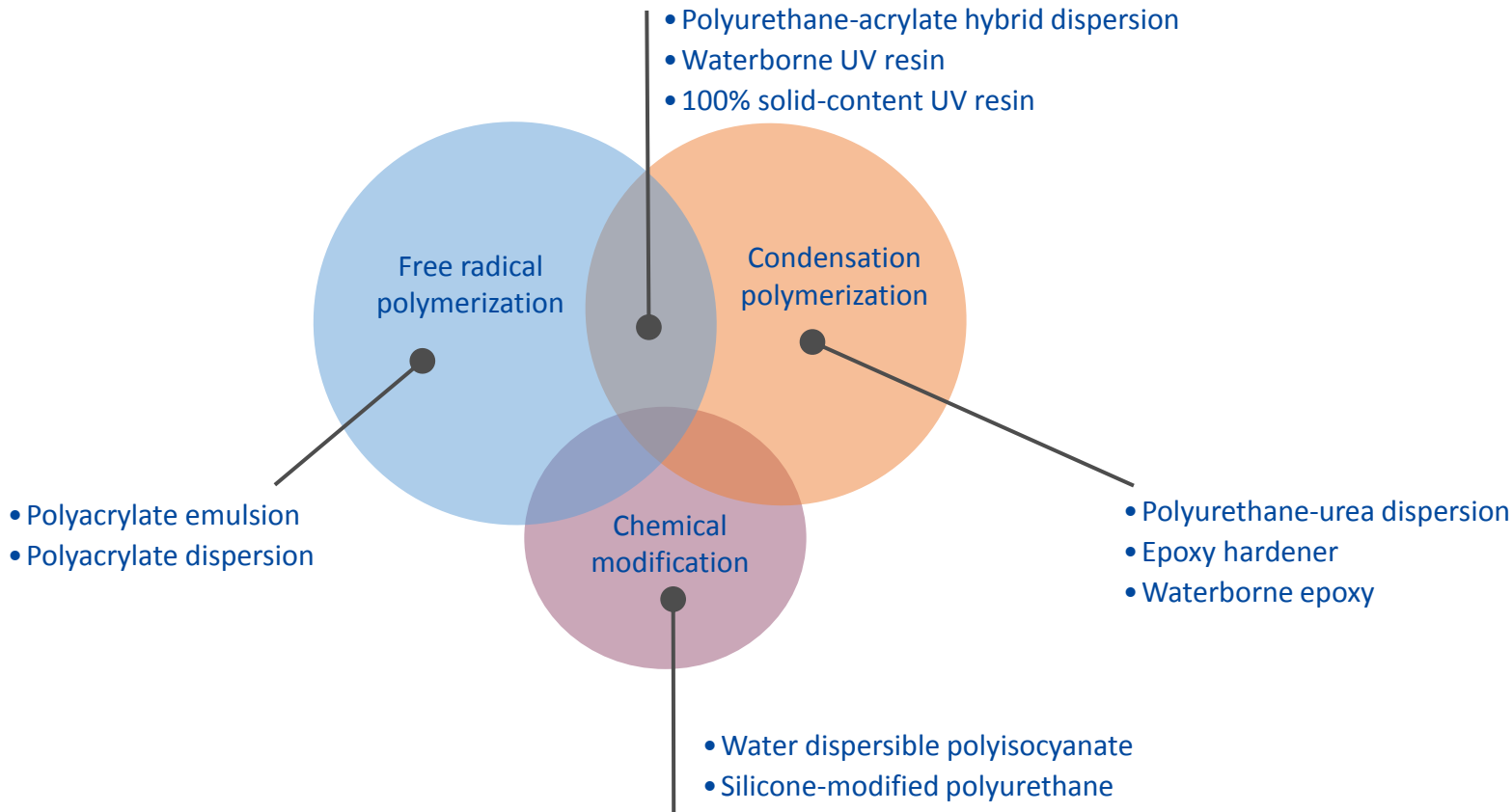


- Customized materials made of feedstock from the monomers in PU and acrylates industrial chain
- Develop special amine and phosgenation products and special derivatives to be used in other industries

- | | |
|----------------------------|--|
| ✓ Surface materials | ✓ Specialty Acrylate |
| ✓ TPU | ✓ EOD |
| ✓ PU Catalysts | ✓ PMMA |
| ✓ SAP | ✓ Other C3/C4 derivatives |
| ✓ Specialty Amine | ✓ Fine chemicals in Isobutene downstream |
| ✓ ADI | |
| ✓ PC | |
| ✓ NPG | |

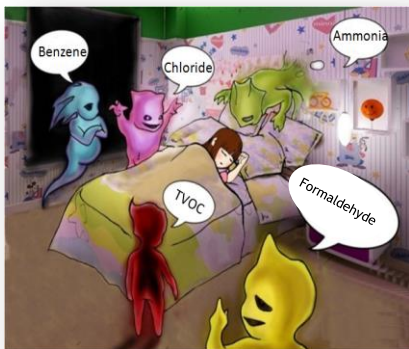






01 | Interior coating solutions

Have you ever been suffered from the below?



Indoor air pollute



Indoor formaldehyde sources



Stain



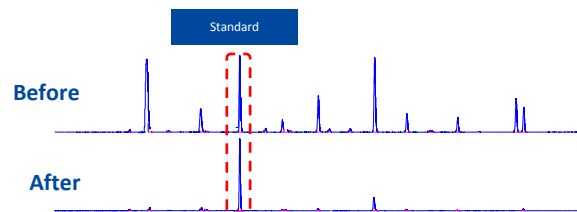
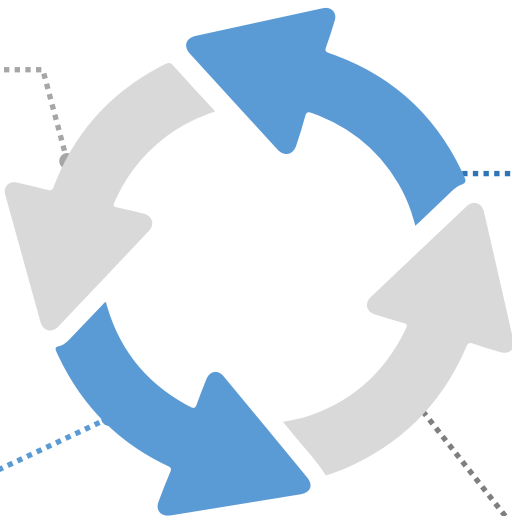
Graffiti

Strict raw material control

- Establish raw material database
- Optimize low VOC material
- Reduce odor source

Multi-molecular design

- Regional polymerization
- Room temperature crosslinking
- No coalescent needed



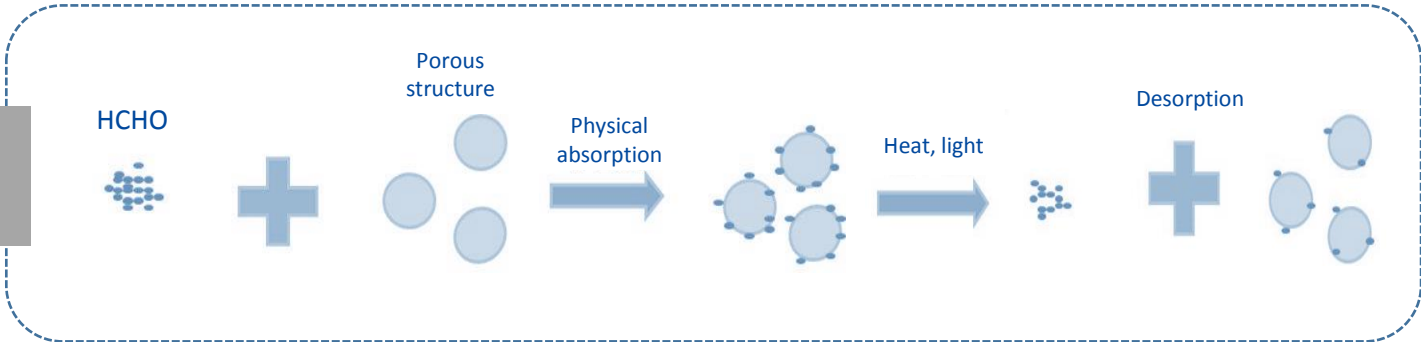
High efficiency VOC removal

- High efficiency in VOC removal
- Reduce odor further

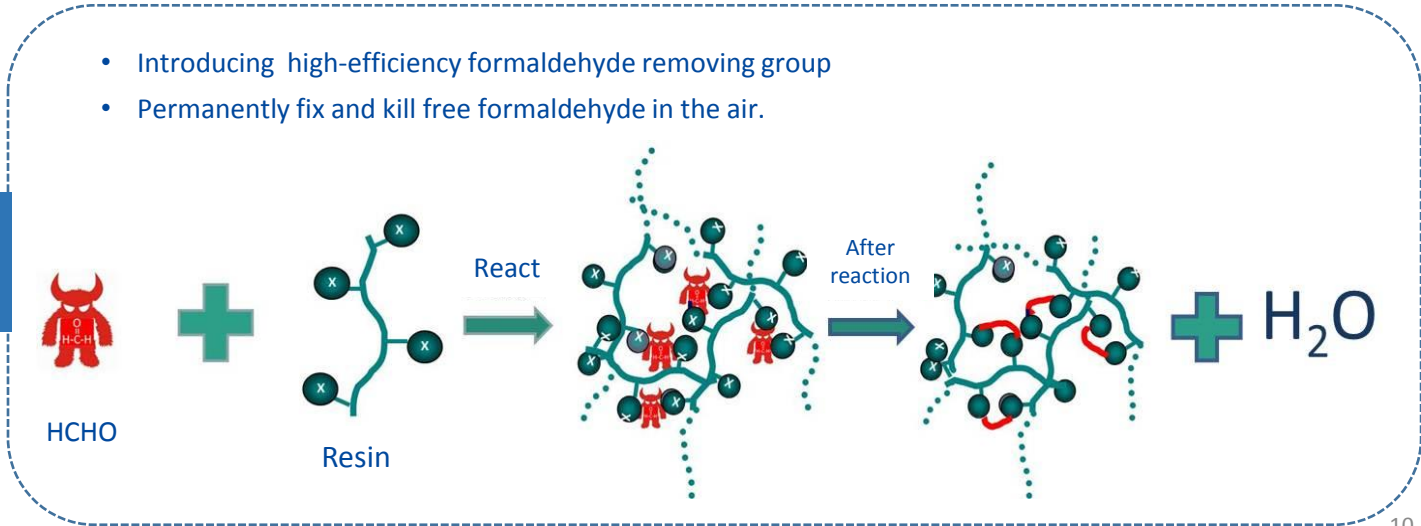
Fine reaction control

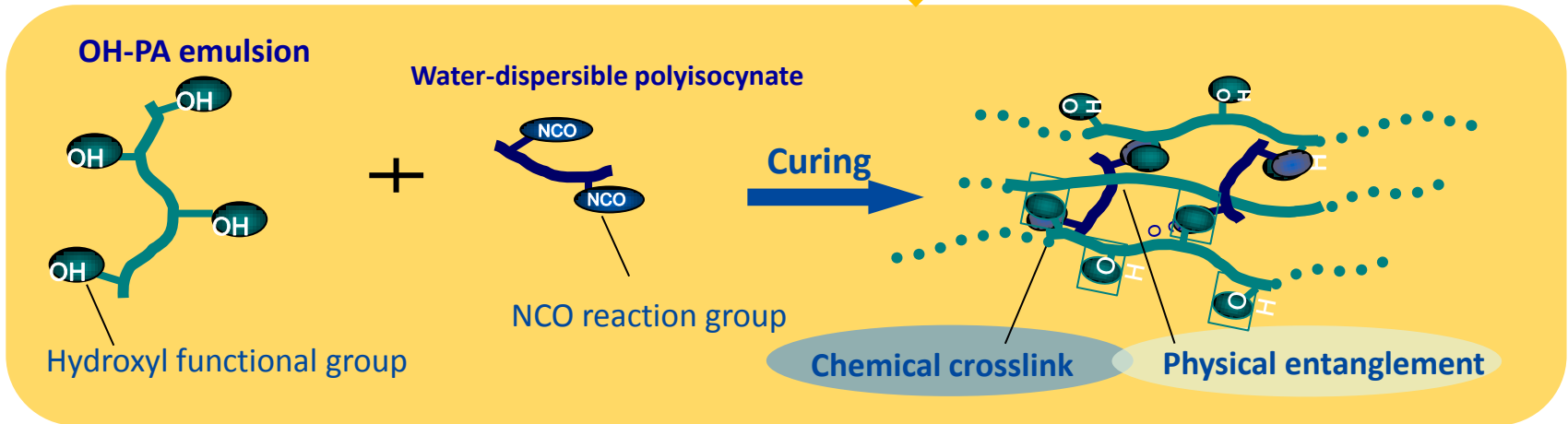
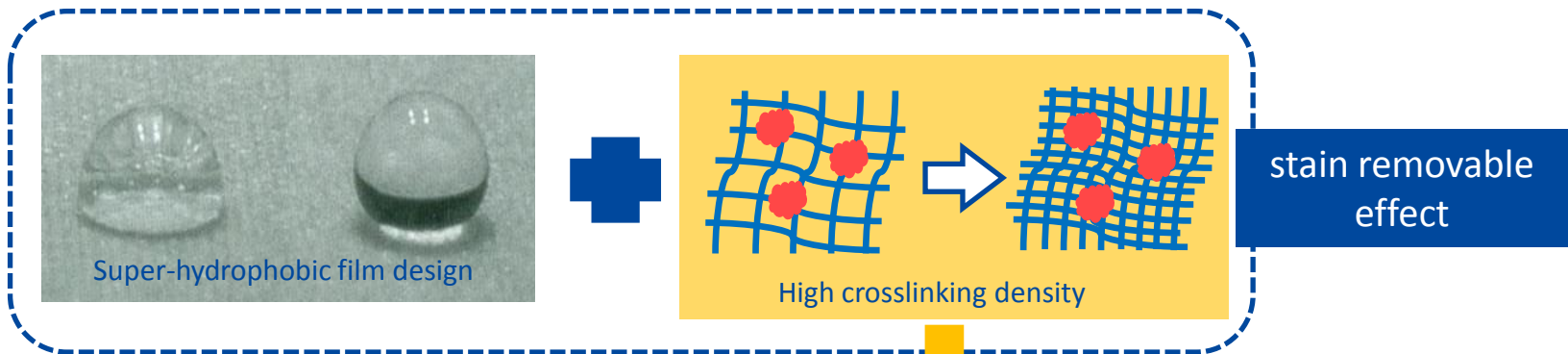
- Sufficient polymerization to minimize monomer residue

Traditional physical absorption



Innovative HCHO purification





What Are Biobased Products?

Biobased products are partly or totally derived from plants and other renewable materials, which provide an alternative to conventional petroleum derived products.

USDA BioPreferred® Program

The program's purpose is to increase the use of renewable resources, which contribute to reducing adverse environmental and health impacts.

Two major parts of the program:

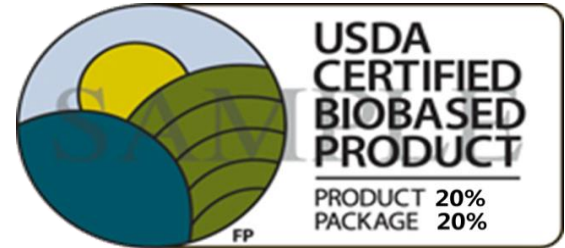
- *Mandatory purchasing requirements for federal agencies and their contractors;*
- *Voluntary labeling initiative for biobased products.*

Biobased Test: ASTM D6866

Bio-based content testing is to determine how much of the carbon within their product is derived from biomass, by measure the Carbon-14.

Minimum Bio-based Content for bio-based product is 20%

BioPreferred®

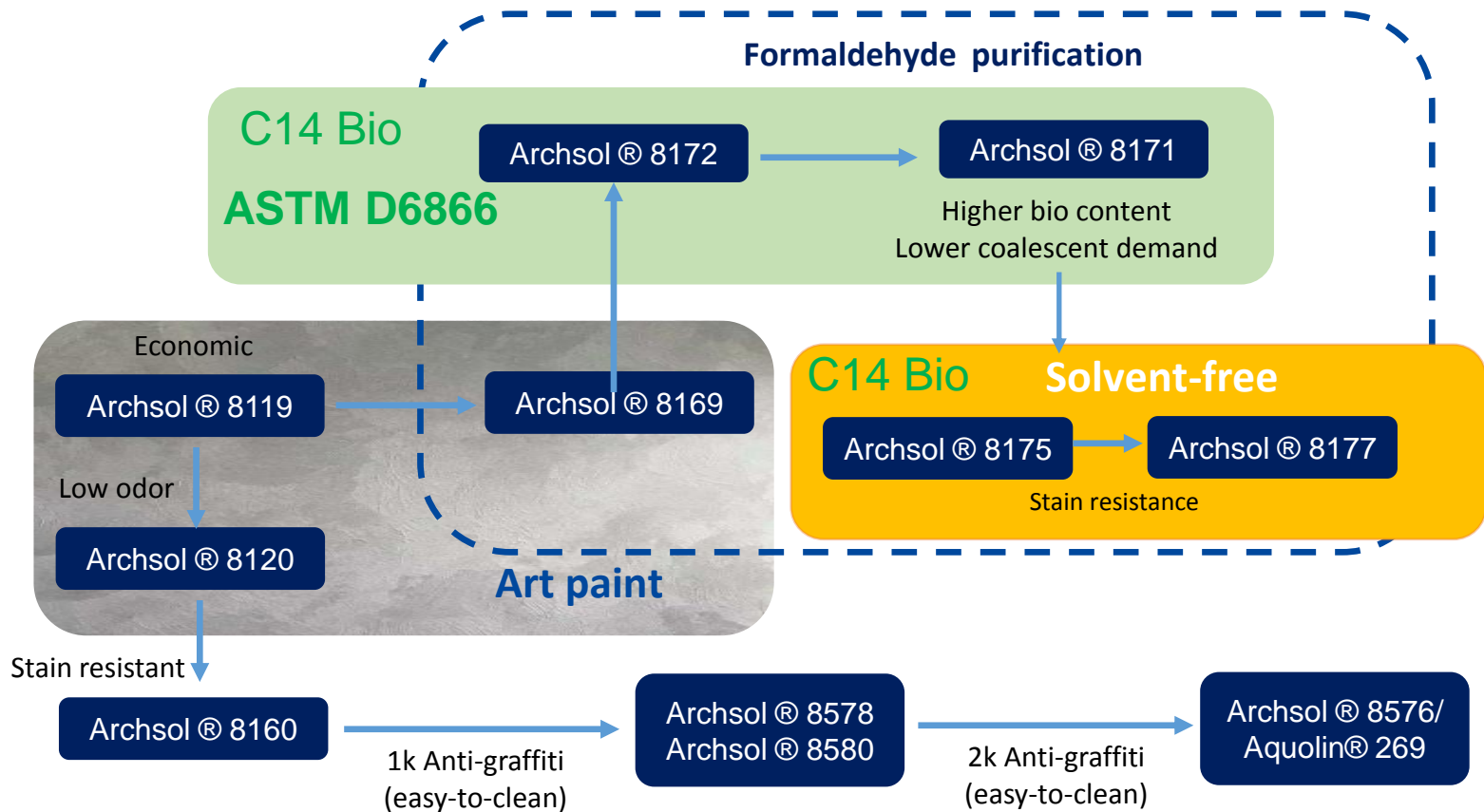


Petro-based



Bio-based





02 | Exterior coating solutions

Archsol® 8119

- *Styrene-acrylic*
- *Excellent wetting to fillers*
- *Cost-effective*



Weathering durability

Archsol® 8061

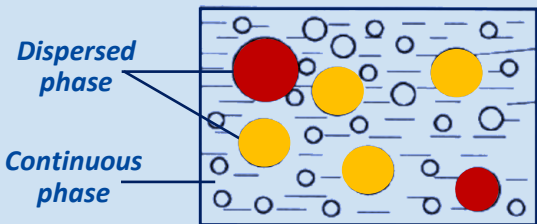
- *Pure-acrylic*
- *Good dirt pick up resistance*
- *Good weathering durability*
- *Good water resistance*



Archsol® 8015A

- *Outstanding early water resistance*
- *Excellent mechanical property*
- *Prominent elongation in low temperature*
- *Excellent alkali resistance*





Different colors stay stable in the same paint



Archsol® 8087
Continuous Phase

MCP

Archsol® 8027
Dispersed Phase

- *Good compatibility with Laponite*

- *Good stability*
- *Less bleeding*



Archsol® 8086s

Topcoat

Archsol® 8067

- *Easy to matt, good film transparency*
- *Good water whitening*
- *Good outdoor durability*

- *Excellent DPUR*
- *Good film transparency*
- *Good water whitening*
- *High gloss*

- *Strict polymerization control, good film forming and high film density*
- *Unique monomer selected, low surface tension in paint film*
- *Less unsaturated group, better outdoor exposure*

Archsol® 8037

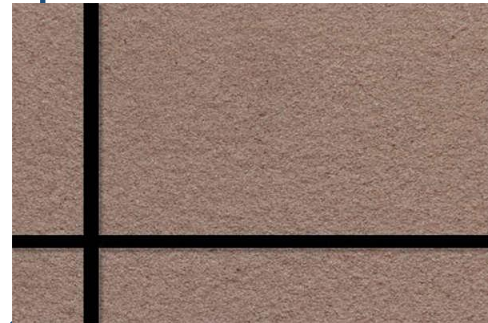
- Styrene-acrylic
- Excellent wetting to fillers
- Cost-effective



Weathering durability

Archsol® 8056A

- Pure-acrylic
- Good dirt pick up resistance
- Good weathering durability
- Good water resistance



03 | Waterproof coating solutions

Archsol® 8316

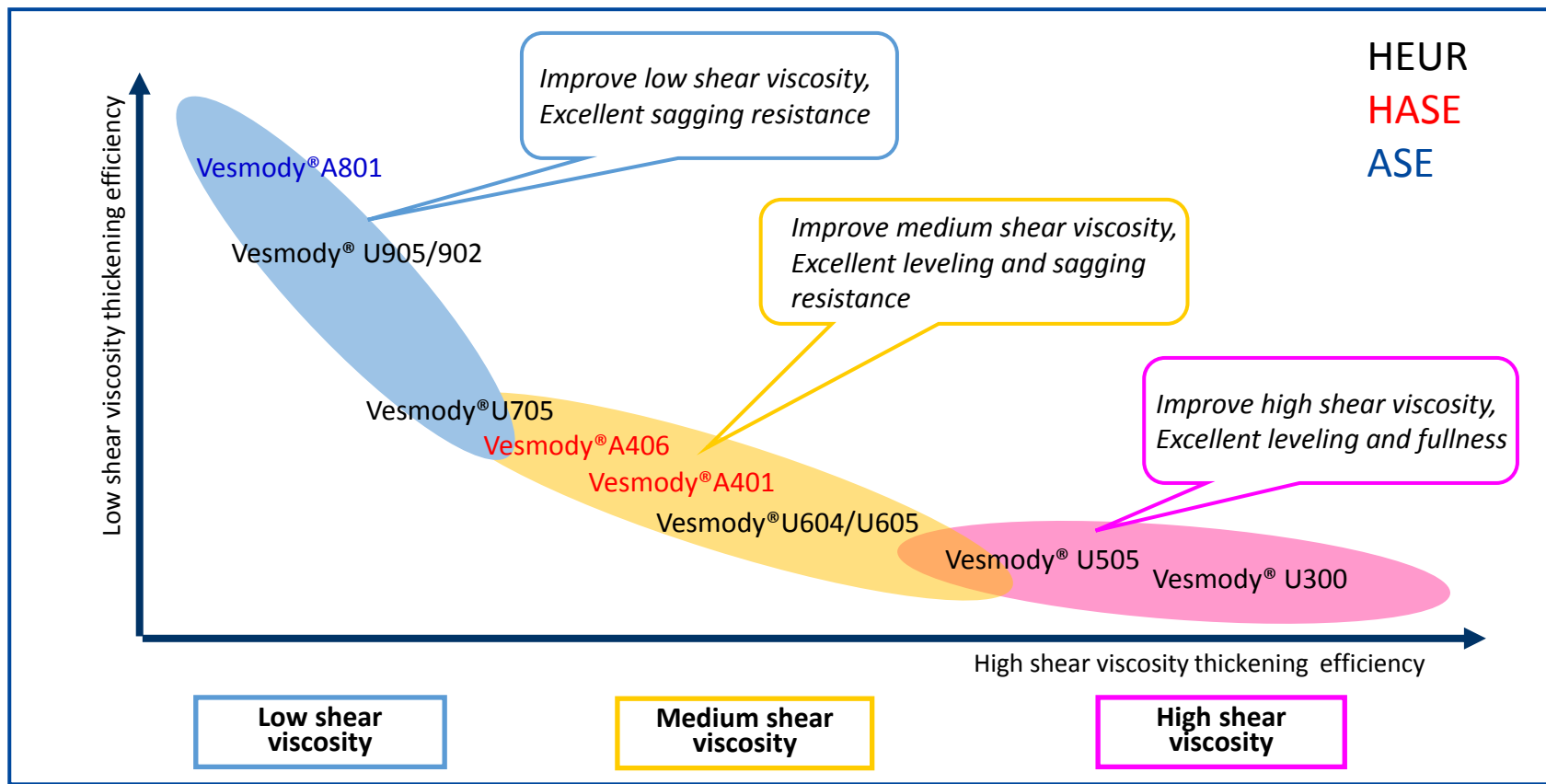
- *Styrene acrylic*
- *Polymer modified waterproof*
- *good compatibility with cement*



Archsol® 8355

- *Aliphatic PUD*
- *Excellent mechanical strength*





*WANHUA HEURs have extremely low odor and VOC.



创新成就卓越 INNOVATION CREATES EXCELLENCE

