



Becoming a specialty chemical company  
with a global presence

# **Polyvinyl alcohol (“PVA”) Resin Global Business Strategy**

April 21, 2016

KURARAY CO., LTD.

# 1. New PVA Plant

- ❑ Location: Bayport, Harris County, Texas
- ❑ Production capacity: 40,000 tons annually in Phase I
- ❑ Investment: Approximately US\$300 million
  
- ❑ New features
  - ◆ Integrated manufacturing from vinyl acetate monomer (VAM)
  - ◆ Highly cost competitive (due to use of shale gas)
  - ◆ Can produce highly differentiated products (*EXCEVAL*®)
  - ◆ Synergies with the former Glass Laminating Solutions (GLS) business (*ELVANOL*)
  - ◆ Land available for expansion in Phase II

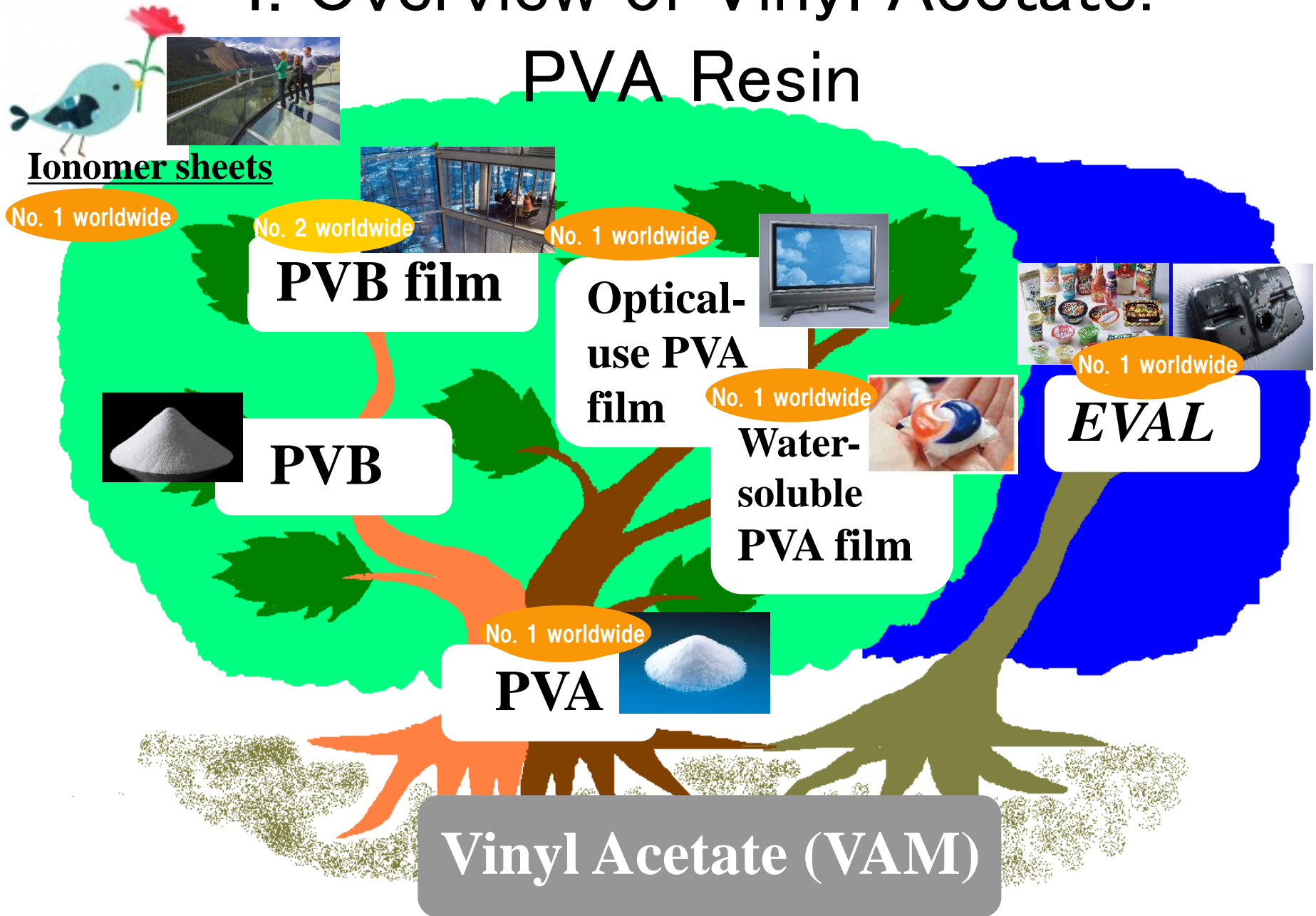
## 2. PVA Resin Production Capacity

Region	Annual capacity (tons)	Facility
Japan	96,000	Okayama
	28,000	Niigata
Asia	40,000	Singapore (Kuraray Asia Pacific: KAP)
Europe	94,000	Frankfurt (Kuraray Europe: KEG)
U.S.A.	63,000	La Porte (Kuraray America: KAI, former GLS business)
	40,000	Bayport (Kuraray America: KAI)
Total	361,000	

# 3. PVA Resin Business Expansion

Year	Event	Japan	Asia	Europe	Americas.	Total capacity
1924	PVA resin invented by Dr. Hermann Staudinger					
1950	PVA fiber 5 t/d	(✓)				
1962	Niigata Plant began PVA resin production 40 t/d	(✓)				
1968	Okayama Plant began PVA resin production 25 t/d	(✓)				
1990s	Expansions at Okayama and Niigata Plants completed	✓				124,000 t/y
1999	Poval Asia (joint venture with Nippon Synthetic Chemical Industry, later KAP)		✓			144,000 t/y
2001	Acquired Clariant (later KEG)			✓		194,000 t/y
2005	KEG facilities expanded			✓		214,000 t/y
2008	KAP made a wholly owned subsidiary		✓			234,000 t/y
2014	KEG facilities expanded			✓		258,000 t/y
2014	Acquired DuPont's vinyl acetate business (GLS)				✓	321,000 t/y
2016	Bayport plant established				✓	361,000 t/y

# 4. Overview of Vinyl Acetate: PVA Resin



# 5. PVA Resin in the Americas

- Integrated GLS (VAM, *ELVANOL*®) operations, expanding brand and sales channels
- Market development in the Americas
  - ◆ Adhesives
  - ◆ Papermaking
  - ◆ Vinyl chloride polymerization aids
  - ◆ Fibers and textiles
  - ◆ New applications and others
- Joint development with MonoSol, LLC (WS (water-soluble) Film Division)

# 6. Global PVA Resin Strategy



- ❑ Establish an optimized production and supply system spanning four key regions (six locations)
- ❑ Raise in-house VAM utilization rate
- ❑ Advance differentiation strategy utilizing the unique strengths of each plant
- ❑ Operate unified global production, development and sales teams