Plasticizer Market Update

SPI Vinyl Products Division

20th Annual Vinyl Compounding Conference

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Agenda

- Global Plasticizer Market – Consumption, Capacities, Trends
- North American Plasticizer Overview
- Phthalate Esters Issues Update

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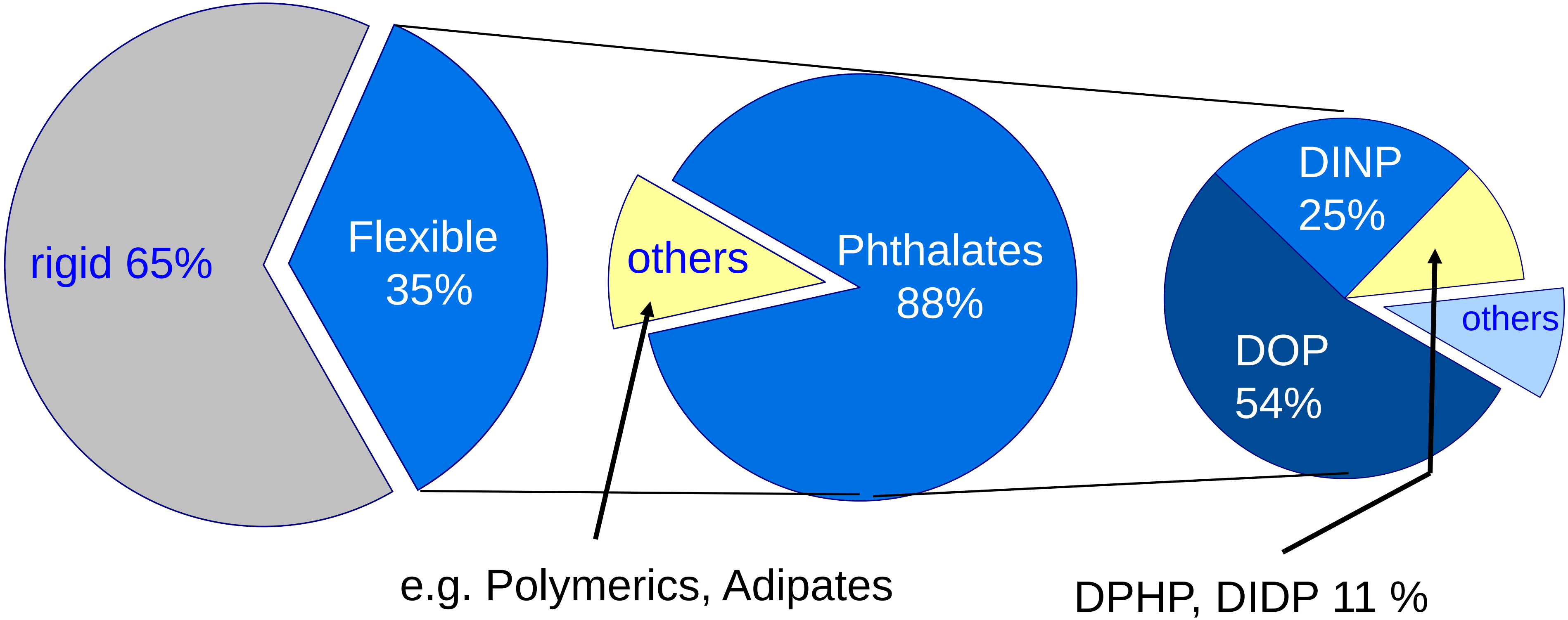
Global Plasticizer Market Structure 2008

35 Mio. t PVC   5.6 Mio. t Plasticizers   4.8 Mio. t Phthalates



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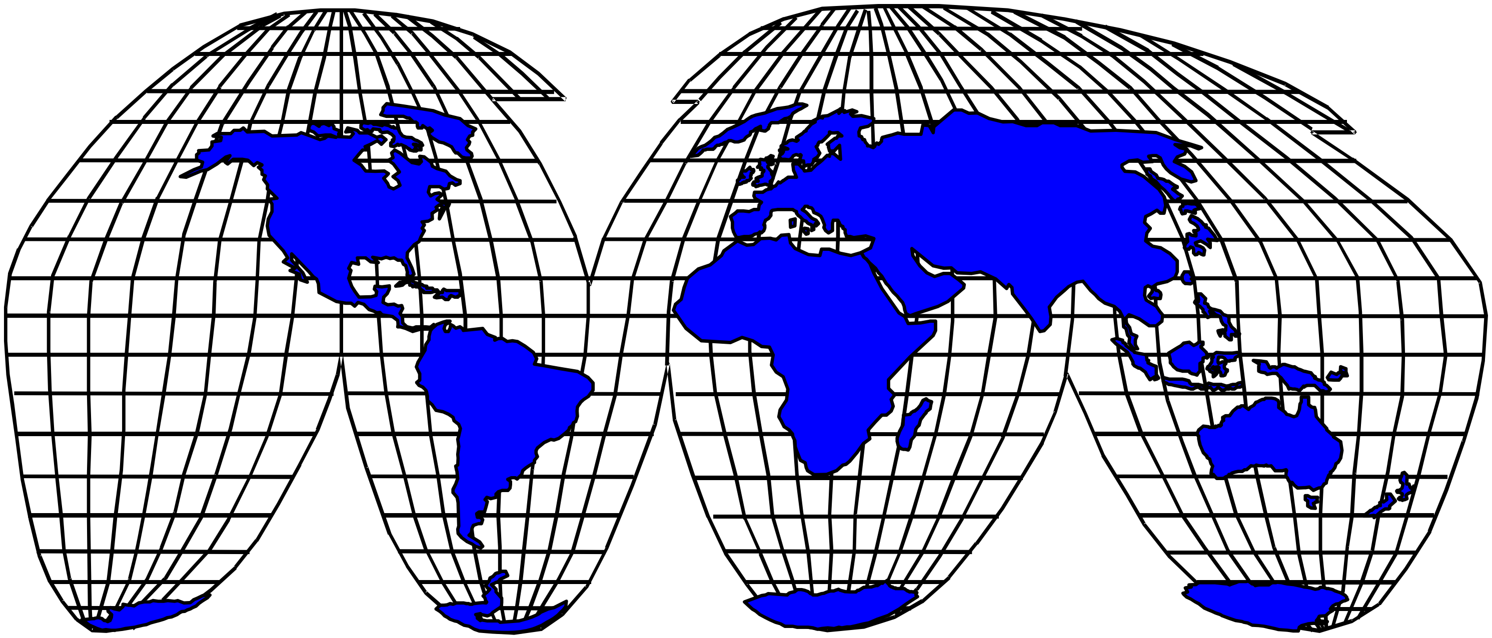
World Plasticizer Market

Estimated Consumption 2008



Region	NA	Europe	China	Rest Asia Pacific	Others
Consumption	0.8 Mio. t	1.1 Mio. t	1.9 Mio. t	1.2 Mio. t	0.6 Mio. t

Total ~ 5.6 Mio. t

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Aspects Effecting Plasticizer Growth

	North America	EU 25	Asia
Politics, legislation	Neutral to negative PVC considered as versatile, "phthalate issue" discussions increasing	Negative PVC and phthalates under pressure, replacements pursued actively	Neutral to positive PVC and phthalates not discussed, mfg growth oriented policies
Demographics	Positive 475 Mio., ~ 0,9 % population growth	Neutral 450 Mio., no population growth, aging population	Positive 4000 Mio., 1,1 % growth, young & growing population
Economic structure	Negative Manufacturing less a driver of the economy, Asian imports replace domestic production (USA)	Neutral Migration of some manufacturing to Far East is partially off-set by CEE and MEA growth. Strong manufacturing base	Positive Strong manufacturing and increasing exports / domestic consumption
Expected consequences for growth	Plasticizer demand will stagnate **GDP (2009-11): 1.0 % CAGR**	Plasticizer demand will stagnate **GDP (2009-11): 0.4 % CAGR**	Plasticizer demand will grow with GDP **GDP (2009-11): 3.1% CAGR**

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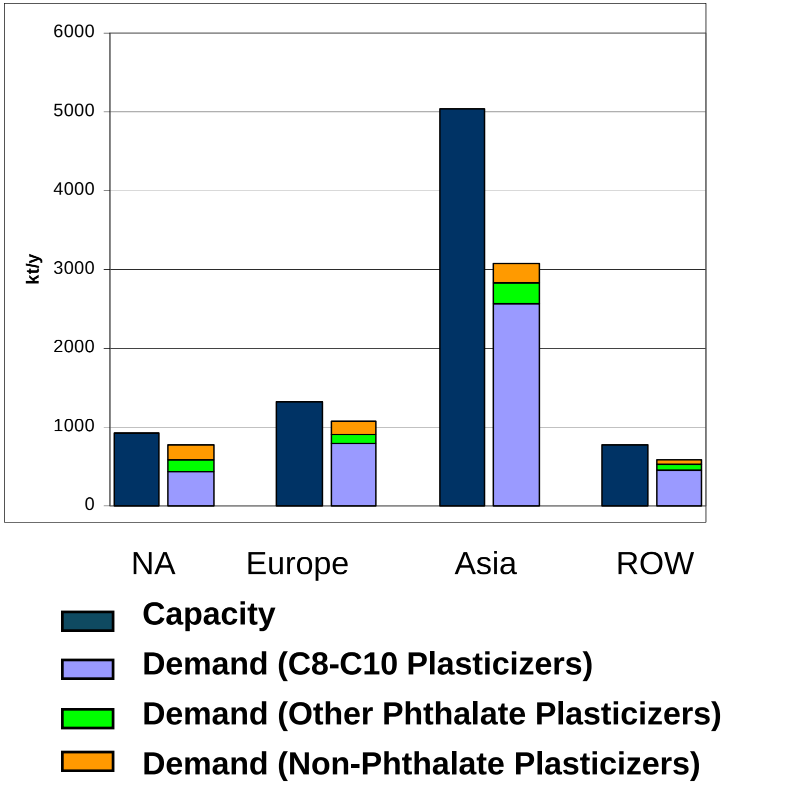
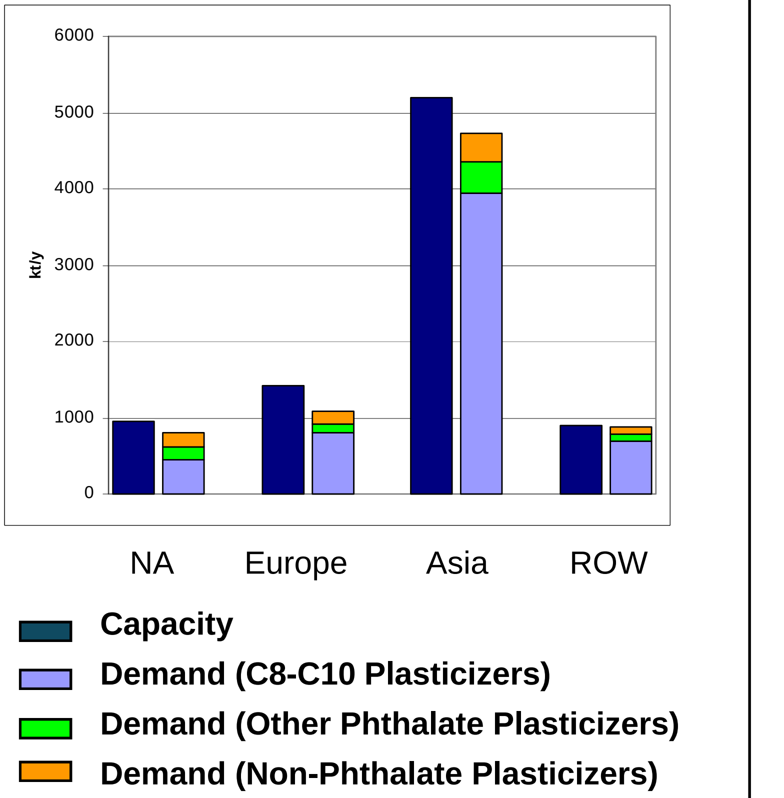
Global Supply/Demand Balance Plasticizers

2008



2018



- Limited product flow between the regions
- Today‘s overcapacities in Asia will decline

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World Plasticizer Market 2008
A Global Perspective

%	USA	Western Europe	Asia
DOP	12	19	65
DINP	23	32	18
DPHP/DIDP	19	23	<1
Linears/other Phthalates	21	10	9
Non-Phthalates	25	16	8
TOTAL	100	100	100

Trends:

- DOP replacement by C9/C10 phthalates and alternative plasticizers in sensitive applications will continue.
- Activists pressure on PVC and phthalates requires increased efforts on advocacy.
- Asia has 65% of the global Plasticizer capacity - the key driver for future growth is Oxo capacity.
- Access to C8/C10 plasticizer alcohols key success factor.

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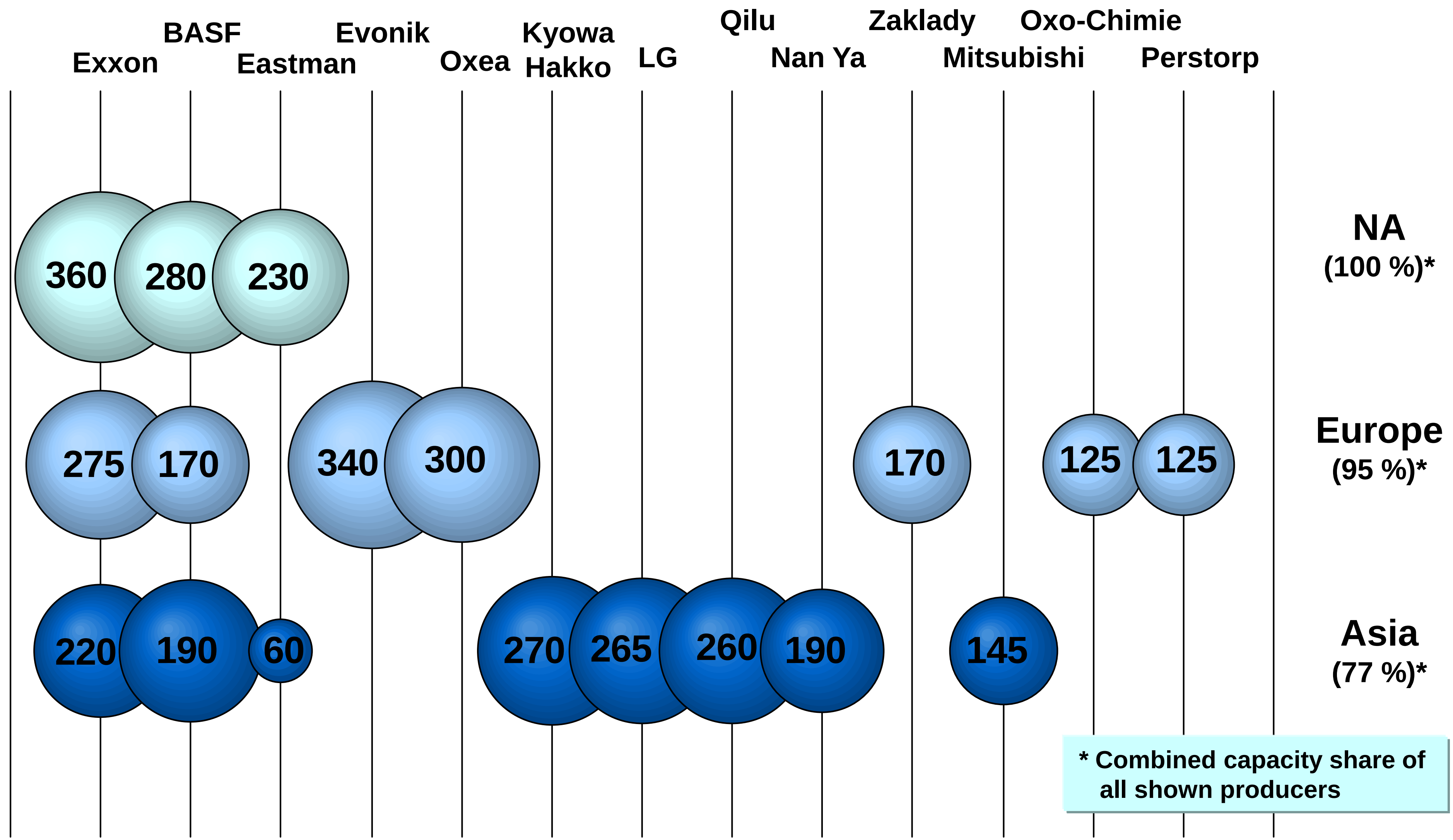
Asia – The largest Plasticizer Market

- Demand is driven by healthy PVC growth (~ 4-5%).
- Asia with 3.1 Mio. t accounts for > 50% of global plasticizers demand.
- Plasticizer growth is forecasted (above global average) at ~3-4%.
- Market is very fragmented and price driven.
- No major global key-accounts.
- Many players are not or only partly back-integrated.
- There are >100 producers with plant sizes ranging from 10 to 250 kt.
- Huge Plasticizer overcapacities with average utilization rate ~70%.
- Imports of plasticizers from other regions are negligible, significant imports of plasticizer *alcohols* to the region.

⇨ **the key driver for future Plasticizer growth in Asia is Oxo alcohol availability.**

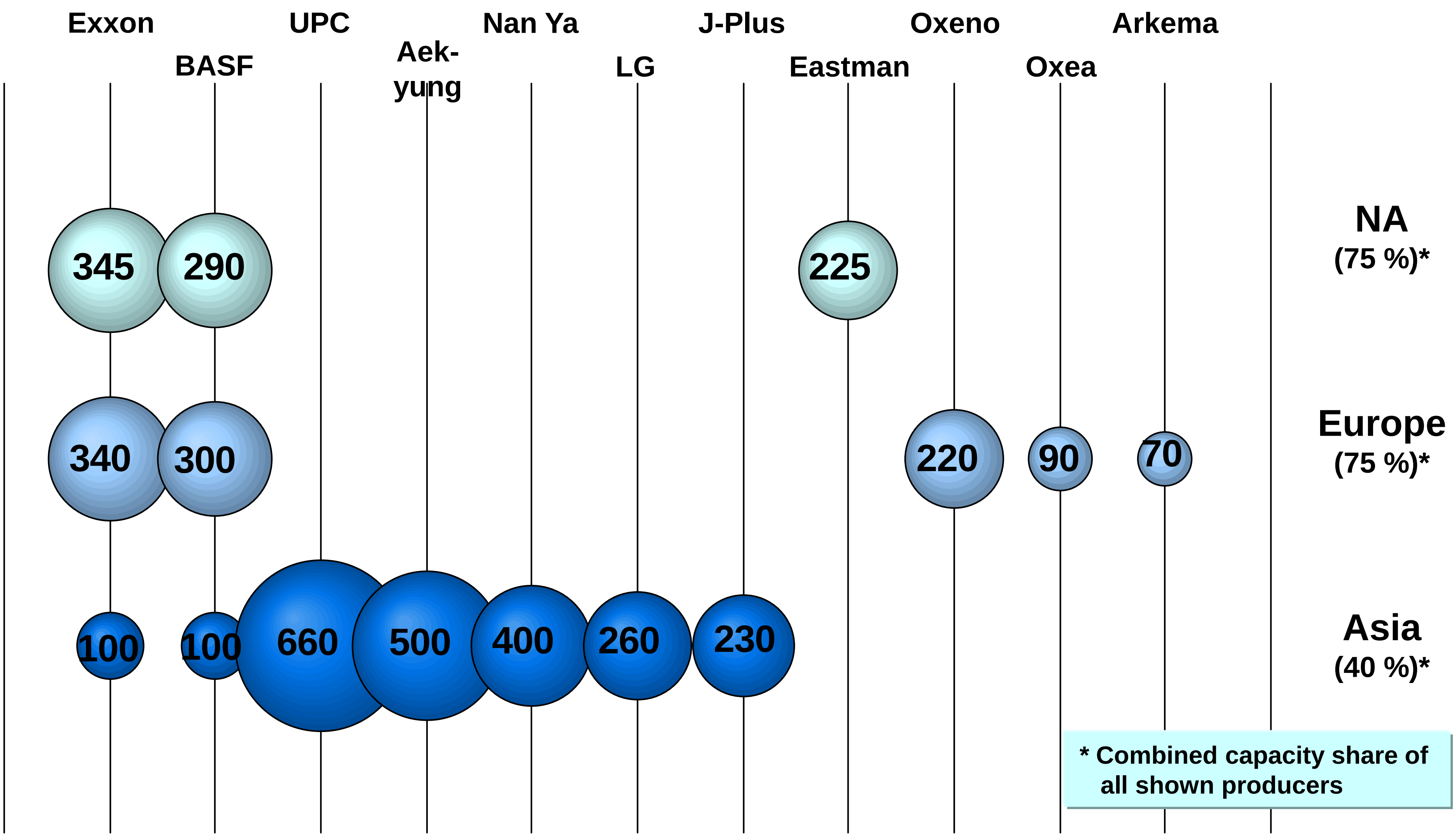
Major Global Manufacturers of Alcohols 2008

C8-C10 Plasticizer Alcohols



* Combined capacity share of all shown producers

Major Global Producers of Plasticizers 2008



* Combined capacity share of all shown producers

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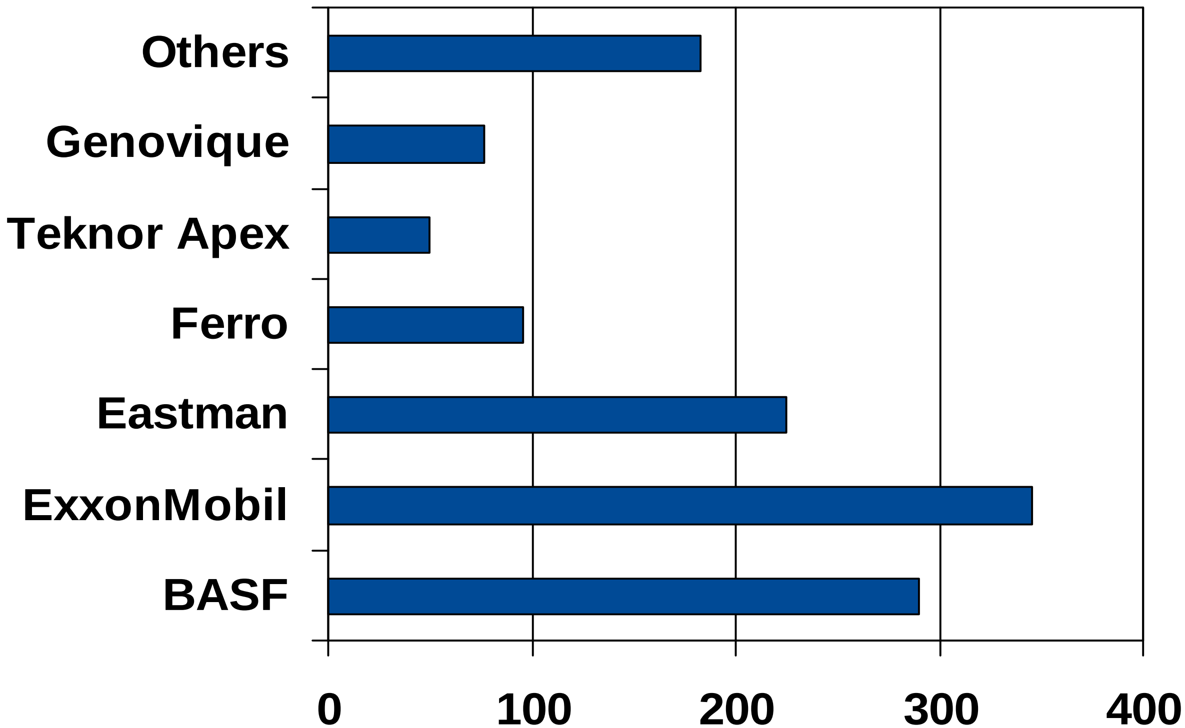
North American Plasticizer Market

Plasticizer Producer Summary (Published Capacities)

Published Ester Capacities NA (name-plate [kt]):



- Most recent investment in North America:
  BASF's new Plasticizer plant at Pasadena/TX with 125 kt/a name-plate capacity started up in 03/2007

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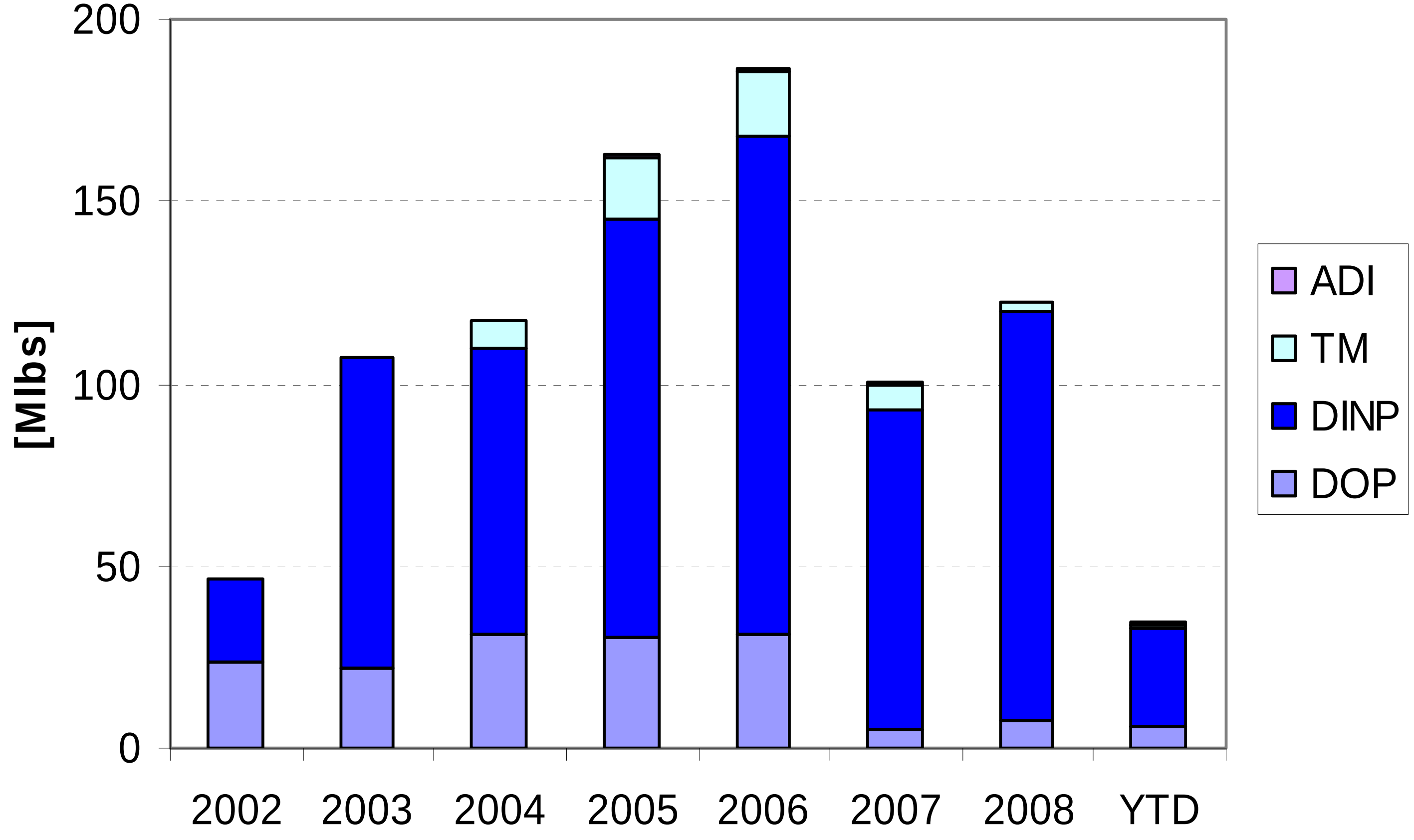
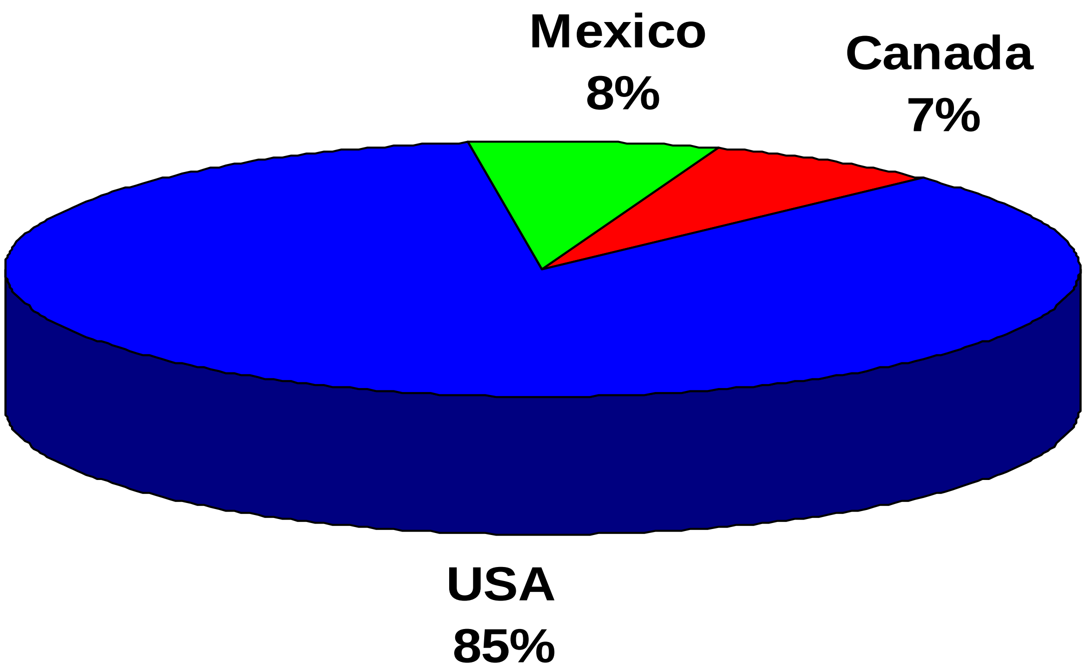
Plasticizer Imports into US
2002 – YTD



- 2005/06: Significant increase in imports (cost differential in raw materials).
- 2007: Global tightness and closing of the import arbitrage.
- 2008: Record volume DINP pace before economic collapse.

North American Plasticizer Market

Relative Market Size



0.8 Mio. t

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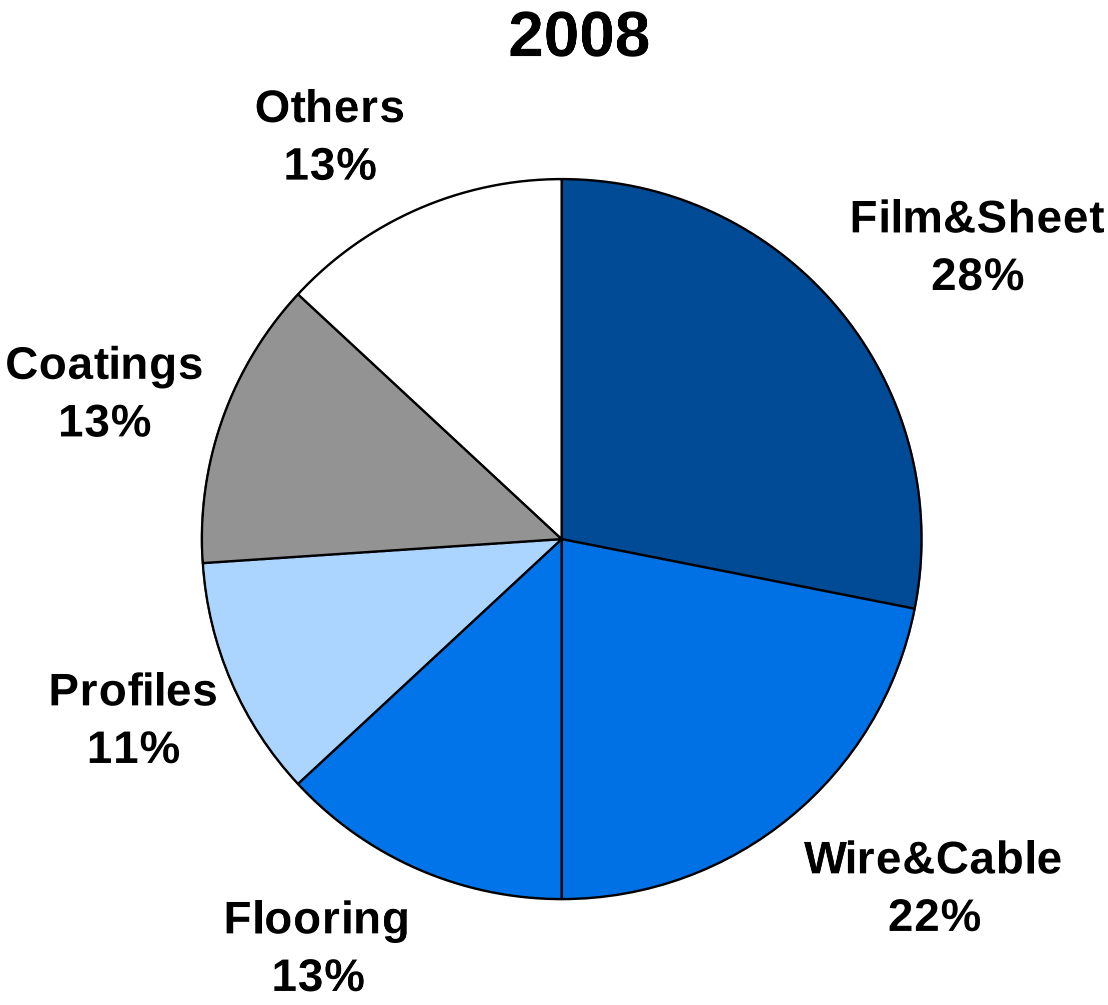
Plasticizer End Use Applications



Trends/Assumptions:

- Overall growth of 0.5%
- PVC in Wire & Cable potentially substituted by alternative materials
- Film & Sheet stronger
- Gradual shift in medical applications from DOP to alternatives expected

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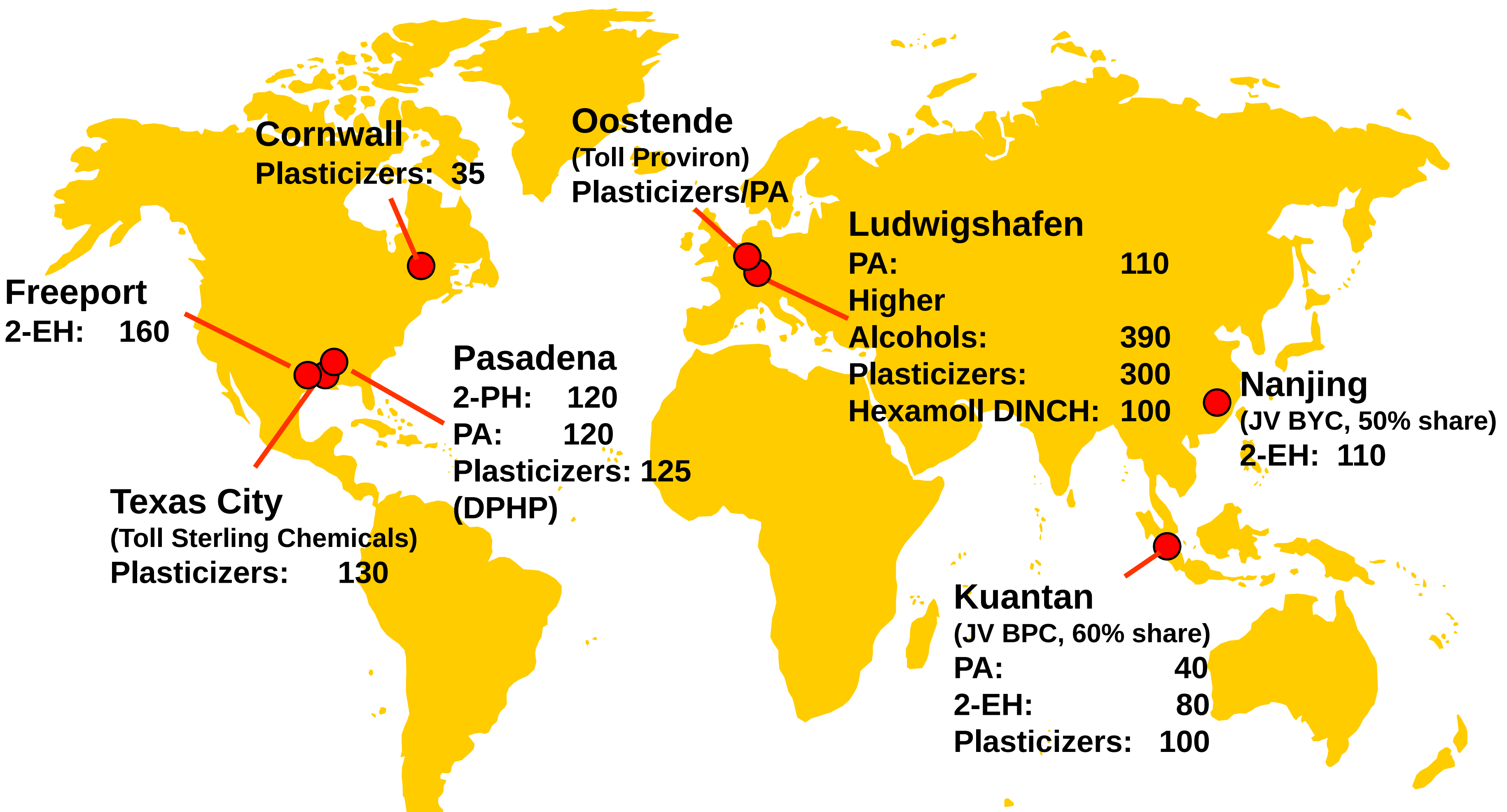
Phthalate Esters Issues Update

- US
  - US CPSC Chronic Hazard Advisory Panel review of phthalates and other plasticizers used in children's products (2011/2012).
  - US FDA review of phthalates in food contact applications, cosmetics and medical devices (2009?).
  - California cancer assessment for DINP.
  - State bills: 13 states, 27 pieces of legislation affecting phthalates - so far none have been passed.
- Health Canada
  - imposed restrictions on 6 phthalates in children's toys and childcare articles.
- EU
  - REACH authorisation list: DBP, BBP, DOP included as substances of very high concern (SVHC).
  - Substitute It Now list: NGO "wishlist" of chemicals for authorization, widely promoted as official; however, no regulatory authority.

BASF Global Production Facilities
for Plasticizer and Plasticizer Raw Materials
(as of Jan 2009)



(all capacities as name-plate [in kt/a])

BASF Plasticizers North America

Manufacturing Structure

(all capacities as name-plate [in kt/a])

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BASF Plasticizer Portfolio North America

Branched Phthalates
for cost-sensitive applications
- Palatinol® DPHP (C10)
- Palatinol® DOP (C8)
- Palatinol® N (C9)

Specialty Linear Phthalates
for improved low- and high-temp performance
- Palatinol® 610P
- Palatinol® 911P
- Palatinol® 111P (DUP)

Non-Phthalates
for highly sensitive applications

Hexamoll® DINCH

Polymerics
for low migration applications
- Palamoll® 652
- Palamoll® 654
- Palamoll® 656

Trimellitates
for improved high temp performance or use in medical (non P)
- Palatinol® TOTM
- Palatinol® 610TM

Adipates
for improved low temp performance
- Plastomoll® DOA
- Plastomoll® DNA

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Plasticizers
Outlook

- Asia is and will remain the dominant consumer of plasticizers – Oxo alcohol availability is the key driver for plasticizer growth.

- Post economic recovery, plasticizer demand in North America expected to grow very slowly at ~0.5% CAAG.

- Politics and legislation on PVC and phthalates will continue to require increased advocacy.

BASF remains highly committed to plasticizers and plasticizer raw materials as a core business globally long-term.

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Thank You!