

# *Global Trend of PVC Stabilisers*

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# *Agenda*



Lead & Tin Replacement

Stabilisers Types in Various Markets

Feedstock Supply/Demand

Conclusion

# *Sun Ace Group Company*



- A Japanese origin **Polymer Additives & Speciality Chemical** manufacturer established in 1940
- Operating in 11 countries at 18 locations
- Producing a full range of PVC Stabilisers & Metal Soaps
- A Multi-Cultural Company with employees with 25 different nationalities



# Group Operations



Singapore



Australia Dandenong



Australia Brooklyn



Malaysia



Saudi Arabia



Brazil



South Africa



Germany Loxstedt



Germany Lohne



China



Japan



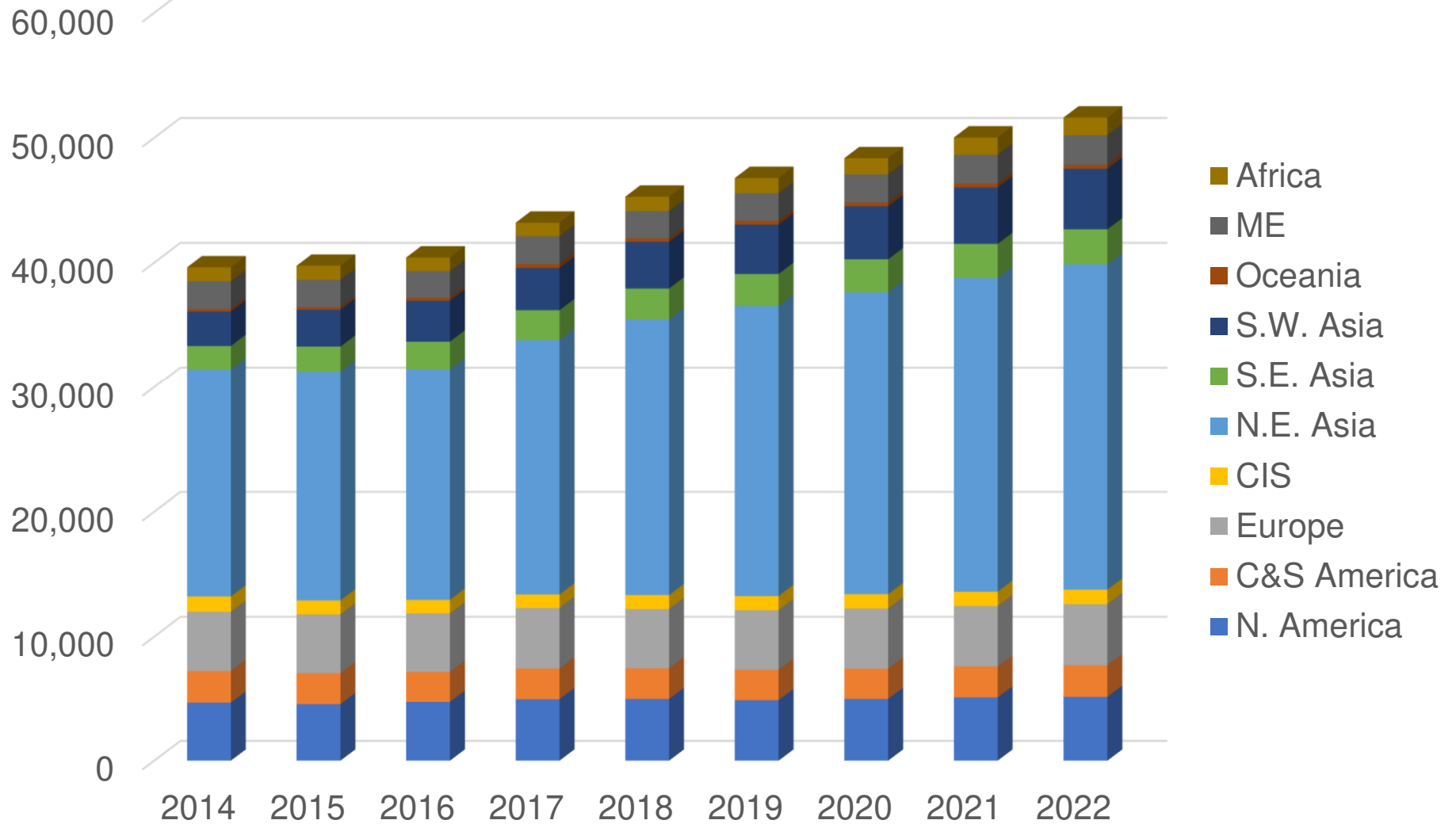
Colombia

*Plants : Japan, Singapore, Malaysia, Australia(2), Saudi Arabia, South Africa, Germany(2), China  
Brazil, Colombia(2)  
Offices : Tokyo, China(2), India(2)*

# World PVC Market



Unit : 1000mt/a



- PVC demand is reaching 50mil mt/a grown 4% in 2020.
- Today 77% of PVC is consumed outside of Europe & US. Asia represents 63% of global demand.
- Heavy metal replacement (Cd, Pb, Sn) in stabilisers has been progressively taking place.
- Pb was dominant globally except North America until recently. It still represented majority share in 2016.
- COS (Calcium & Organic System including Ca-Zn) has been selected as an alternative in most markets.

- The largest market for PVC; 24mil mt/a or 49% of the global demand (China alone consumes 22mil mt/a).
- China has been actively replacing Pb/Sn with COS in all applications.
- For pipes in China, 50% is Pb has shifted Pb free and another 30% is being replaced.
- Japan was the first market to go Pb free in potable pipe in the region early 1990's by Sn and eventually by COS.
- The region is following the trend of Europe.

## South East Asia

*Thailand, Vietnam, Indonesia, Malaysia,  
Singapore, Philippines, etc.*



- One of the fastest growing PVC markets with annual consumption 2.6mil mt.
- Larger pipe producers have been replacing Pb with COS voluntarily while small-medium players remain with Pb.
- Wire & cable are mostly Pb free except power cable.
- Legislation; Singapore banned Pb in 2019 and Thailand is phasing out Pb by Aug/Sep 2022.
- The region is expected go Pb free in 5-6 years.
- AVC (Asean Vinyl Council) is playing a key role to guide regional government & industry for Pb replacement.



- Rapidly growing market with PVC consumption 4.3mil mt/a.
- India is the main driver and 75% of PVC is used in pipe & fitting.
- In 2019, Indian Ministry of Environment announced Pb phase-out program in 4 years recommended by National Green Tribunal.
- Despite some delays due to Covid-19, the phase-out process will commence from potable pipe in 2022, agricultural pipe in 2024 and finally sewer pipe in 2025.

## Middle East

*Saudi Arabia, Egypt, UAE, Oman, Bahrain, Qatar, Kuwait, Iraq, etc.*



- Growing market with PVC consumption of 2.2mil mt/a.
- Larger pipe producers have replaced Pb with COS voluntarily (represent less than 10%) while small-medium players remain with Pb.
- Mixture of Pb & COS in wire & cable application.
- No formal legislation to control heavy metals expect Qatar.
- No big change predicted in the region and most likely to stay with Pb for the next 5-6 years.

## Africa

*South Africa, Nigeria, Kenya, Ethiopia, Tanzania, Botswana, Zimbabwe, etc.*



- PVC market with annual consumption of 1.3mil mt.
- South Africa replaced Pb with COS in 2016 led by initiative of SAVA (South Africa Vinyl Association).
- Following South Africa, Botswana & Zimbabwe also follow Pb free initiative more recently.
- The rest of Africa remain with Pb with no sign of near future replacement.

## South America

*Brazil, Argentina, Chile, Peru, Colombia, Ecuador, Uruguay, Paraguay etc.*

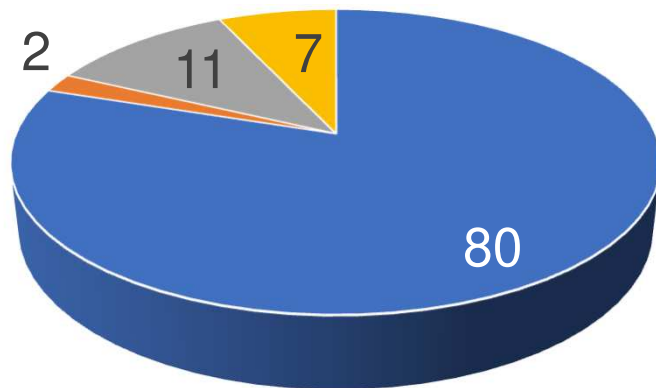


- Growing market with PVC consumption of 2.1 mil mt/a.
- Largest market Brazil replaced Pb with COS 2006-07 followed by Argentina.
- The rest of region use mixture of Pb & Sn.
- Under the influence of REACH, larger producers are looking at heavy metal replacement with COS.
- Some government agencies are looking at introduction of control measure for heavy metal.

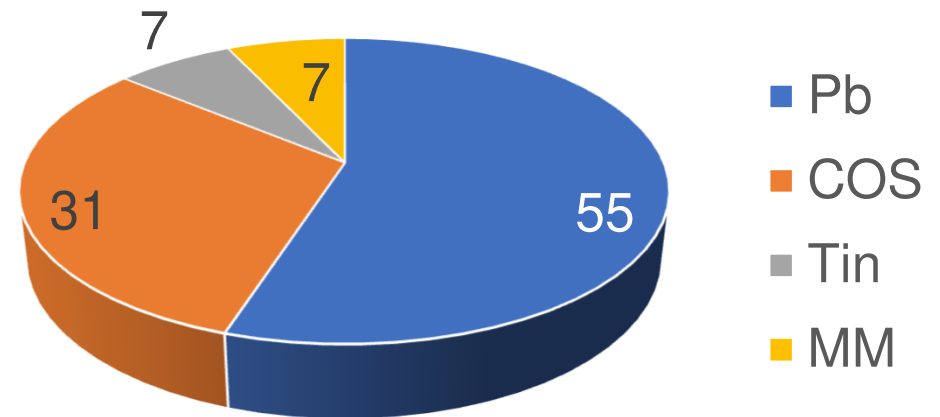
## Stabiliser by Product Type



1990



2016



*Lead has kept a dominant position among all the stabiliser types*

## *COS vs Pb & Sn*



- Pb & Sn are excellent heat stabilisers with well established supply chain globally.
- On the other hand, COS ingredients alone are not strong heat stabilisers and requires specific combinations.
- Besides heat stability requirement, also processability needs to be properly adjusted especially plate-out.
- Today COS is capable offering compatible level of cost performance to Pb/Sn.
- Most of COS raw materials are consistently in use for more than 10-15 years.

## *COS Feedstock Supply*

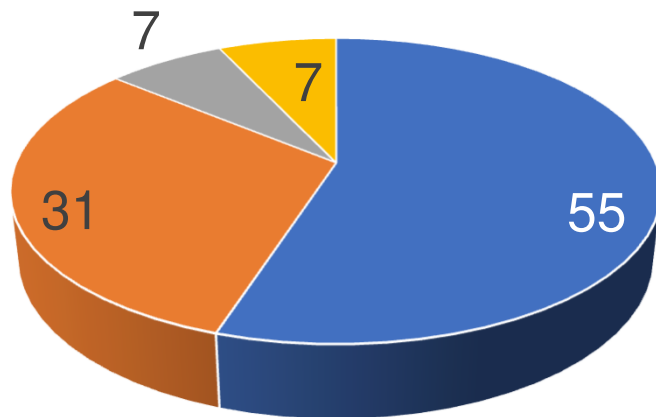


- While adequate COS stabiliser production capacity was built, some raw materials supply became critical.
- EU replaced 130,000-150,000MT/a of Pb stabilisers with COS during 2000-2015 and most of raw materials were supplied from China.
- With stricter Environmental & Safety Controls enforced in China since 2015, some of COS ingredients supply became extremely short.
- Tight supply situation was once balanced in 2019 with slowdown of global economy.

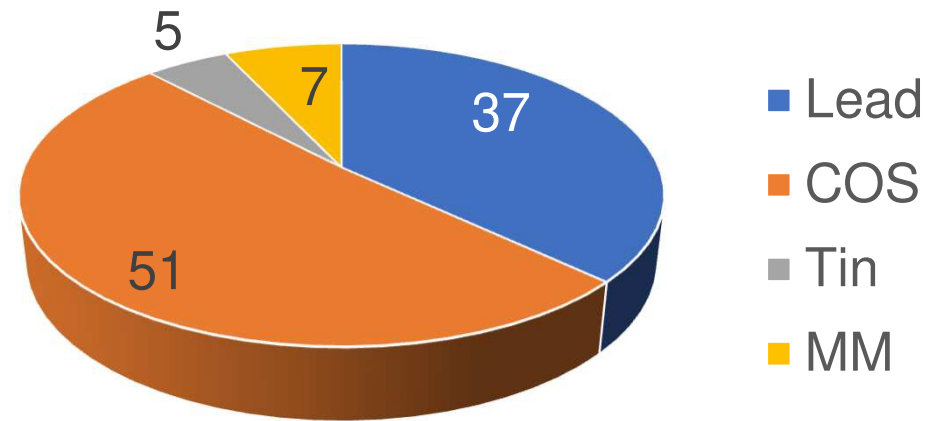
## Stabiliser by Product Type



2016



2023-25



*A dominant position of Lead is being replaced by COS*



## *The Way Forward*



- Covid-19 slowdowns heavy metal replacement in various markets especially in India.
- However the process will continue and COS will become dominant stabiliser in 2023-25.
- Additional demand for COS in the next 3-5 years will be 120,000-190,000MT/a.
- 10-20% of extra COS requirement consists of critical co-stabiliser with potential short supply.

## *Conclusion*



- With ongoing pandemic & tighter controls in China, the timing of critical COS raw materials new capacity implementation may be affected.
- Need to be cautious for Supply & Demand balance for the next few years.
- This potential tightness will not stay beyond 3-5 years.

# *Vision*

*We believe in dynamic growth through our Multi-Cultural Team Work & Partnership. We aim to be a world leading supplier of speciality additives & services by focusing on multi-regional market needs.*

