



# Antifoams for the production of PVC

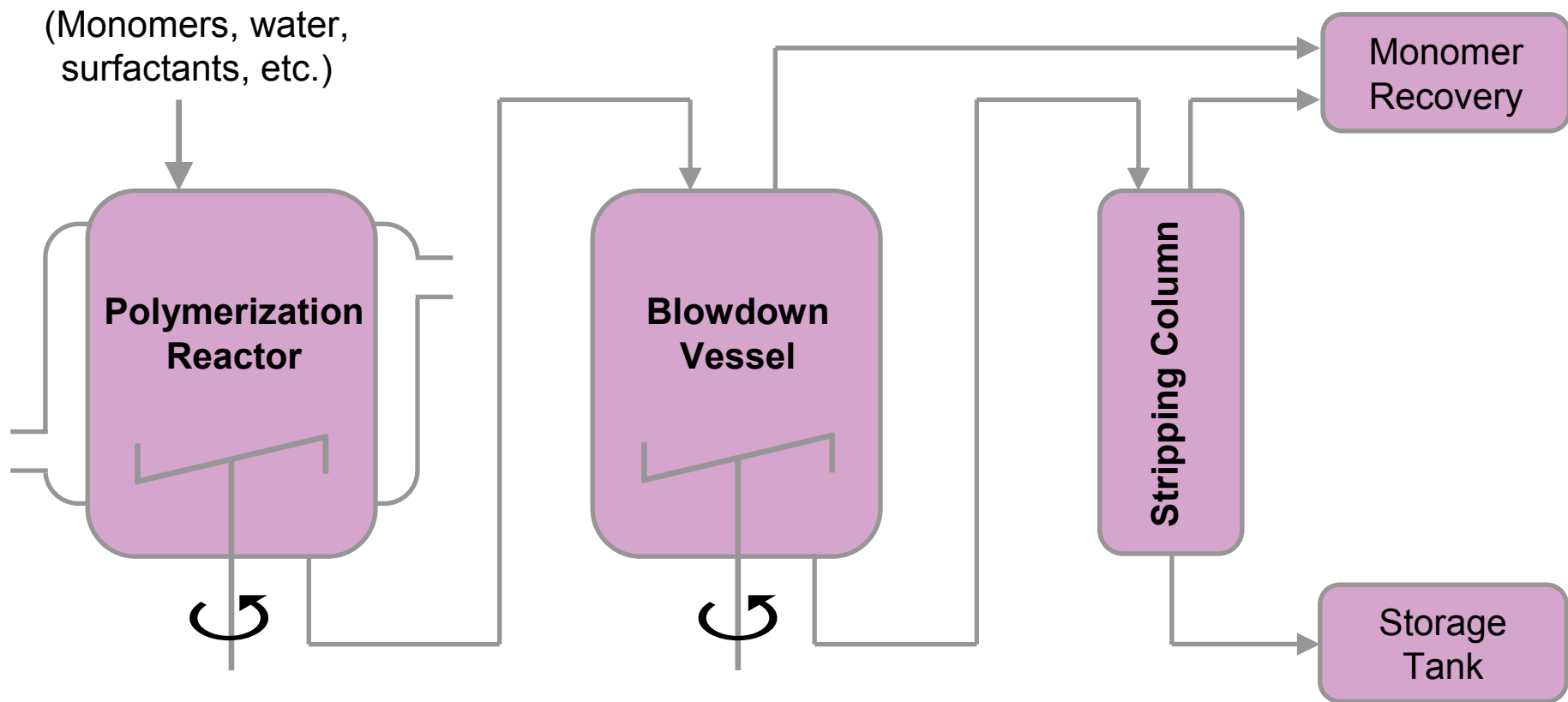


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# Our Products are Suitable in All Production Steps



## TEGO® Antifoam application range



# The Sintered Glass Test is Fast, Simple & Reliable



Lab equipment for sintered glass test

## Preparation

- One litre surfactant solution in 2-litre cylinder
- Defined amount of prediluted antifoam is added

## Procedure

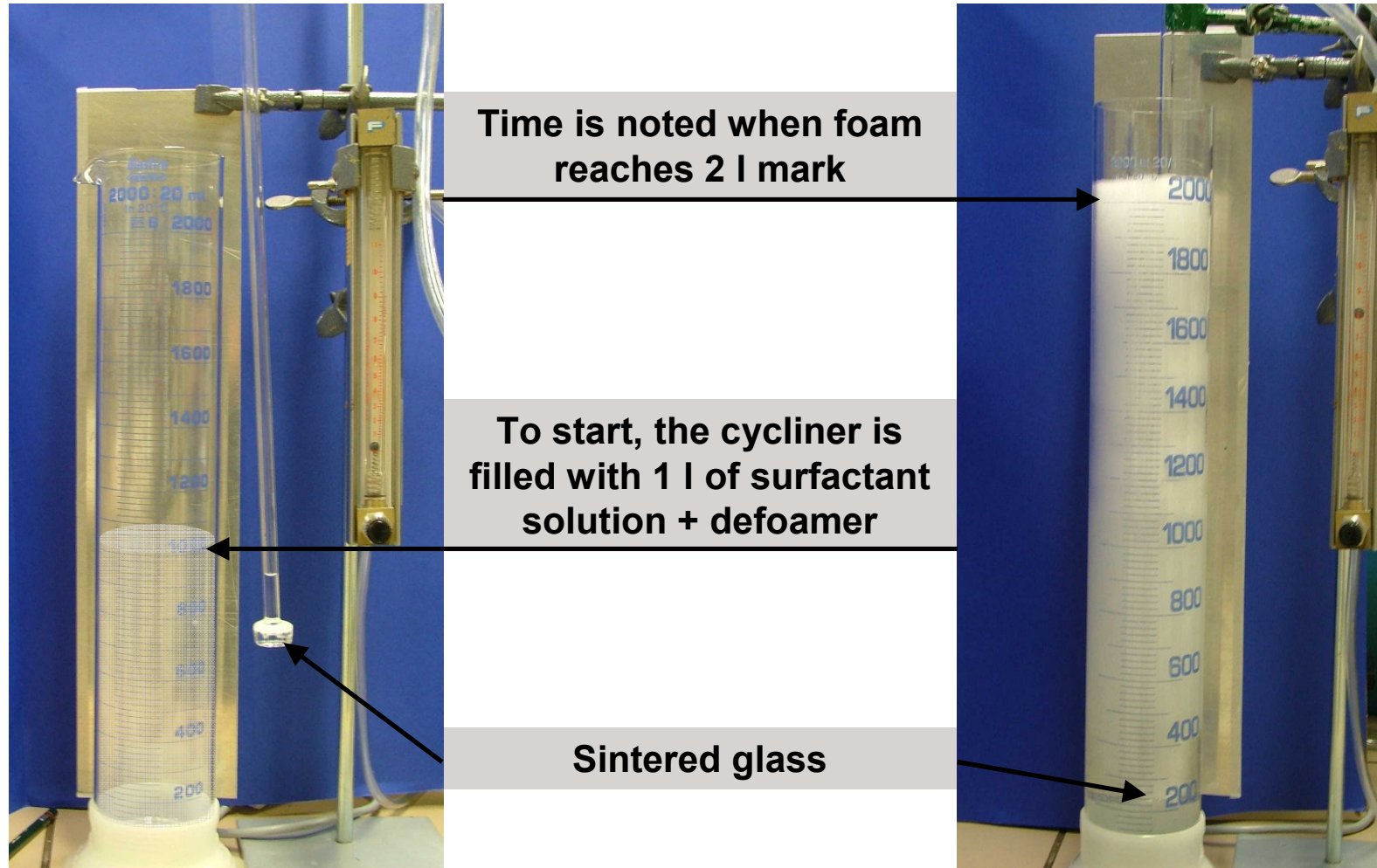
- Air is passed through the sintered glass (6 l/min)
- Foam is generated
- Time to reach 2 litre mark is noted
- Test is finished

## Interpretation

The measured time is used as parameter to evaluate the defoamer performance. The longer the time the better the defoamer.

PVC defoamers are tested at 60 °C.

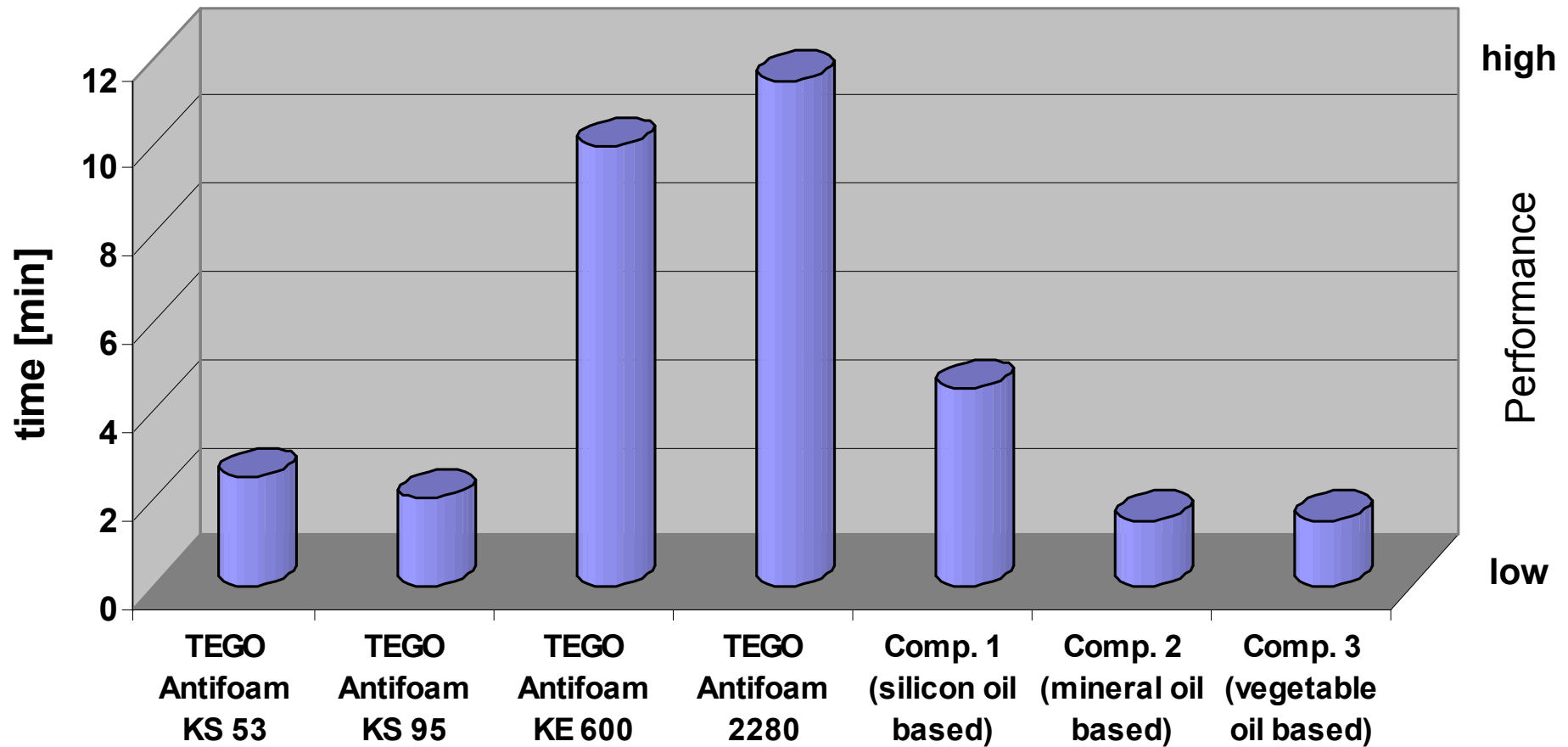
# The Sintered Glass Test – That is What it Looks Like



# TEGO Antifoams KE 600 & 2280 are Perfect for S-PVC



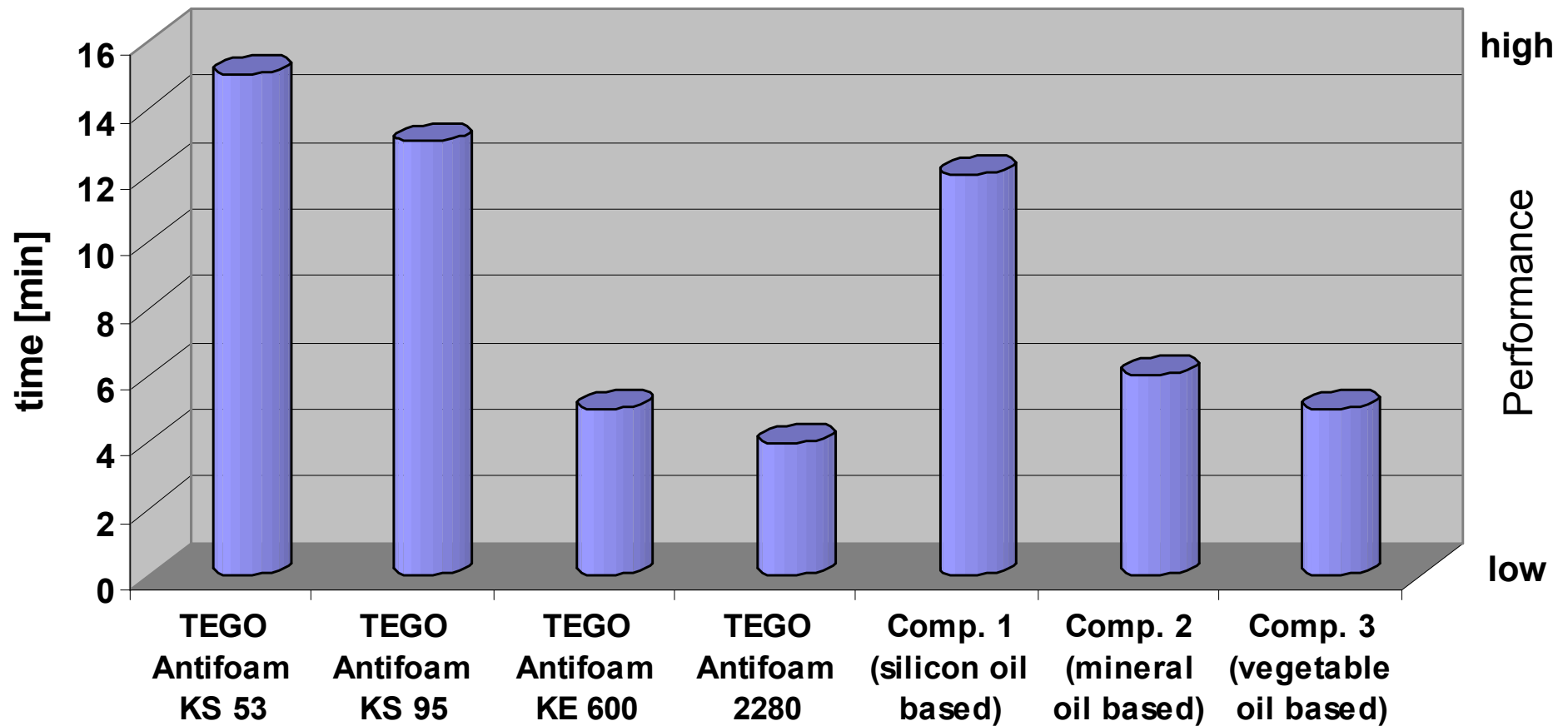
0,1 % PVOH, standard for S-PVC  
(sintered glass test)



# TEGO Antifoams KS 53 & KS 95 are Perfect for MS-PVC and E-PVC



1 % alkyl benzene sulfonate, standard for MS- and E-PVC  
(sintered glass test)



## Besides good antifoaming performance Antifoams need to be compatible to:



- **The production process, which should not be affected by the type of antifoam you use**
- **The existing statutory regulations, like chemical inventories or food contact regulations**
- **The properties of the PVC resin, no matter in which final application it is used**

# How Antifoams can Affect the Production Process



## Destabilisation of the slurry or latex

- Effect: separation of aqueous phase and polymeric particles
- Very seldom phenomenon which occurs only if very high amounts of antifoam are used (> 1%).

## Inhibition of the polymerisation

- Effect: polymerization yields no product or product with poor quality
- May occur in the production of E-PVC if antifoams are used containing unsaturated C-C bonds



# Tego Antifoams are Available for All Types of PVC



Process	Production step	TEGO® Antifoam KS 53	TEGO® Antifoam KS 95	TEGO® Antifoam KE 600	TEGO® Antifoam 2280
E-PVC	Polymerisation	—	—	●	●
	Blow-down Stripping	●	●	○	○
Mikro S-PVC	Polymerisation	○	○	●	●
	Blow-down Stripping	●	●	○	○
S-PVC	Polymerisation	○	○	●	●
	Blow-down Stripping	○	○	●	●

- first recommendation
- alternative recommendation
- not recommended for this application

# Antifoams Need to be Listed



## Listing correlated to food contact

- Necessary to avoid limitations for final use of PVC grade
- Most important: FDA, European directive 2002/72/EC

## National chemical inventories

- Necessary to sell a product in countries with chemical inventories
- Inventories exist all over the world

# Overview of Food Contact Inventories for our PVC Antifoams

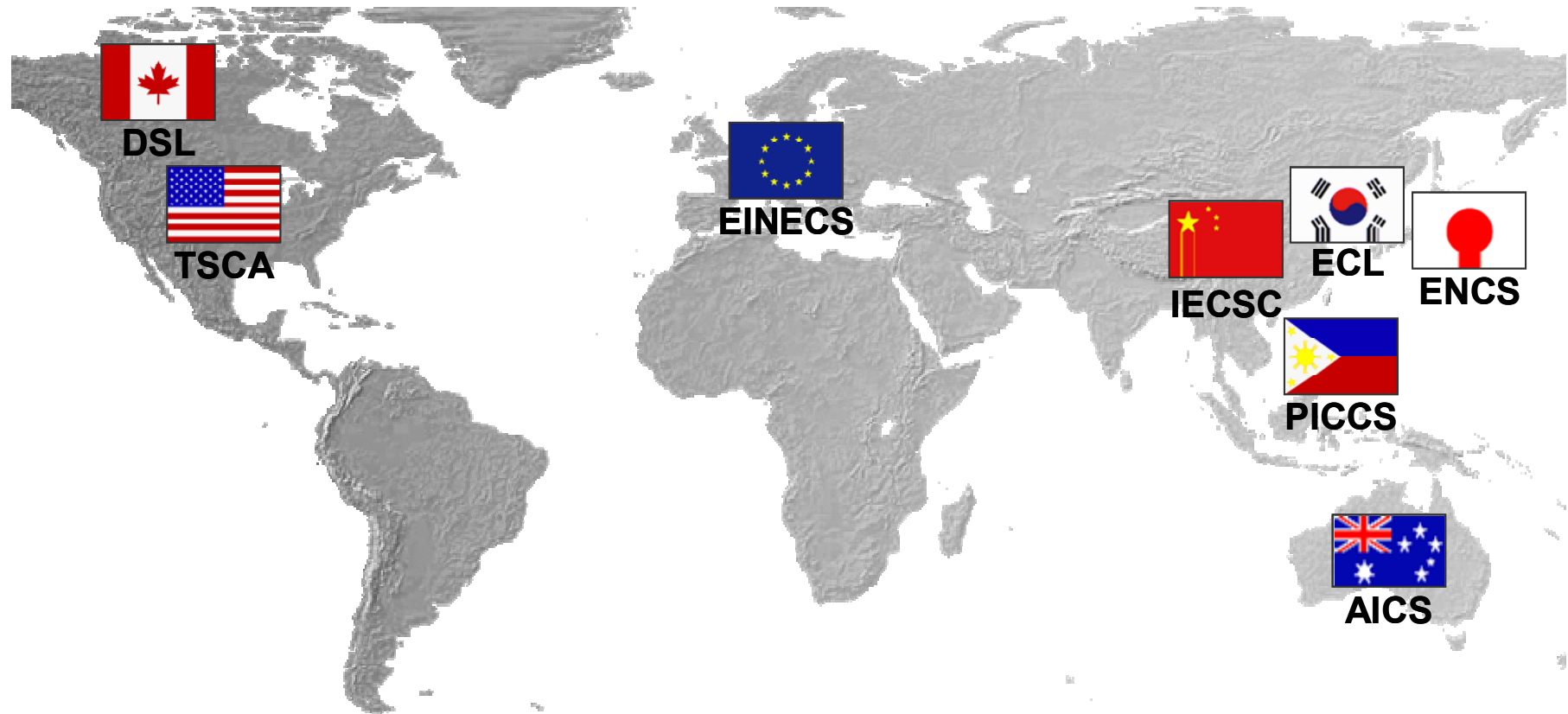


	TEGO® Antifoam KS 53	TEGO® Antifoam KS 95	TEGO® Antifoam KE 600	TEGO® Antifoam 2280
Directive 2002/72/EC	●	●	---	●
FDA 176.210	●	●	●	●

➔ Most of our products can be used for food contact applications

2002/72/EC: Commission Directive of 6 August 2002 relating to plastic materials and articles intended to come into contact with foodstuffs.

# Tego Antifoams for PVC are Listed in all National Inventories



→ Our products can be sold in every country of the world without limitations

# Which Effect Antifoams can have on PVC resins



Fogging: automotive industry

Hazy films: production of clear films

Increase electrical conductivity: cable isolation

Welding properties: assembling of window frames

Reduced printability and foamability: packaging, cable, tubes

# Which Antifoam for Which Application?



PVC property	TEGO® Antifoam KS 53	TEGO® Antifoam KS 95	TEGO® Antifoam KE 600	TEGO® Antifoam 2280
Fogging behavior	●	●	●	●
Transparency of films	○	○	○	○
Electric resistance	○	○	○	●
Welding properties	●	●	●	●
Printability and foamability	●	●	●	●

● no negative influence observed  
 ○ influence may occur (depending on defoamer dosage and the total PVC formulation)



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