

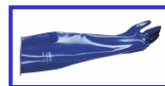


Comparison Tosoh vs Hypalon on gloves



Hands under high security

E. TELLIER / December 10 th 2010



Nucléaire



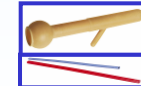
Industrie pharmaceutique



Médical



Aéronautique



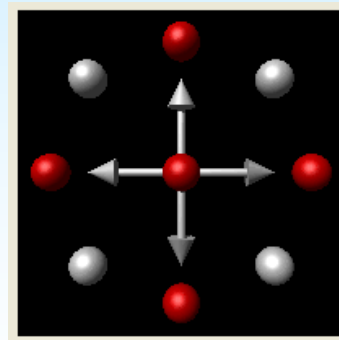
Industries diverses



- **DU PONT ELASTOMERS** stops Hypalon (CSM) production
- For several years, **TOSOH** provides CSM grades strickly equivalent to Hypalon



TOSOH evaluation for Hypalon replacement

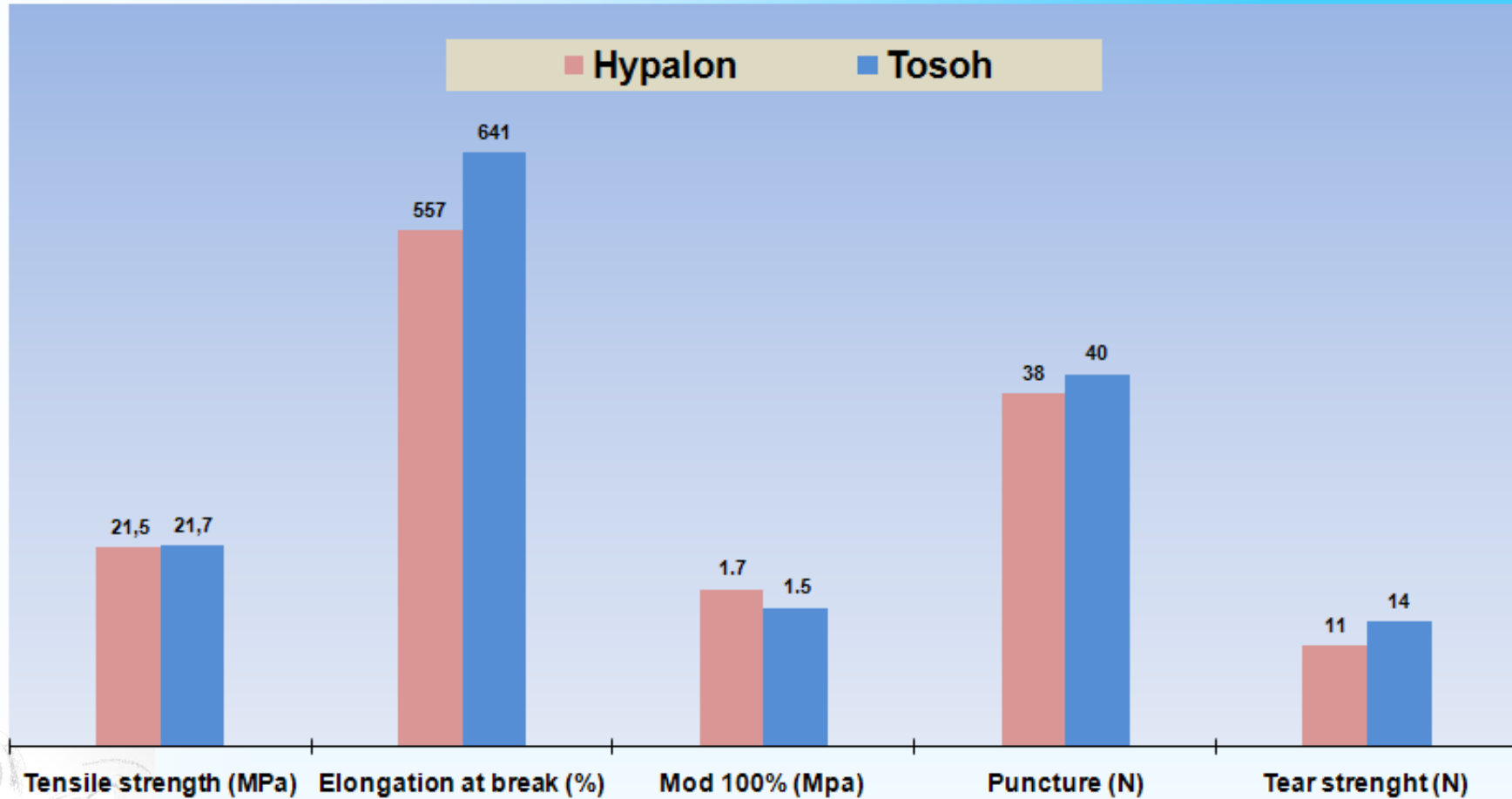


Characteristic	Hypalon grade	Tosoh grade
Mooney viscosity	56	56
Chlorine (%)	34.5	35
Sulfur (%)	1	1
Density	1.18	1.18
Color	White	White

- 
- CSM grades Tosoh and Hypalon have same characteristics

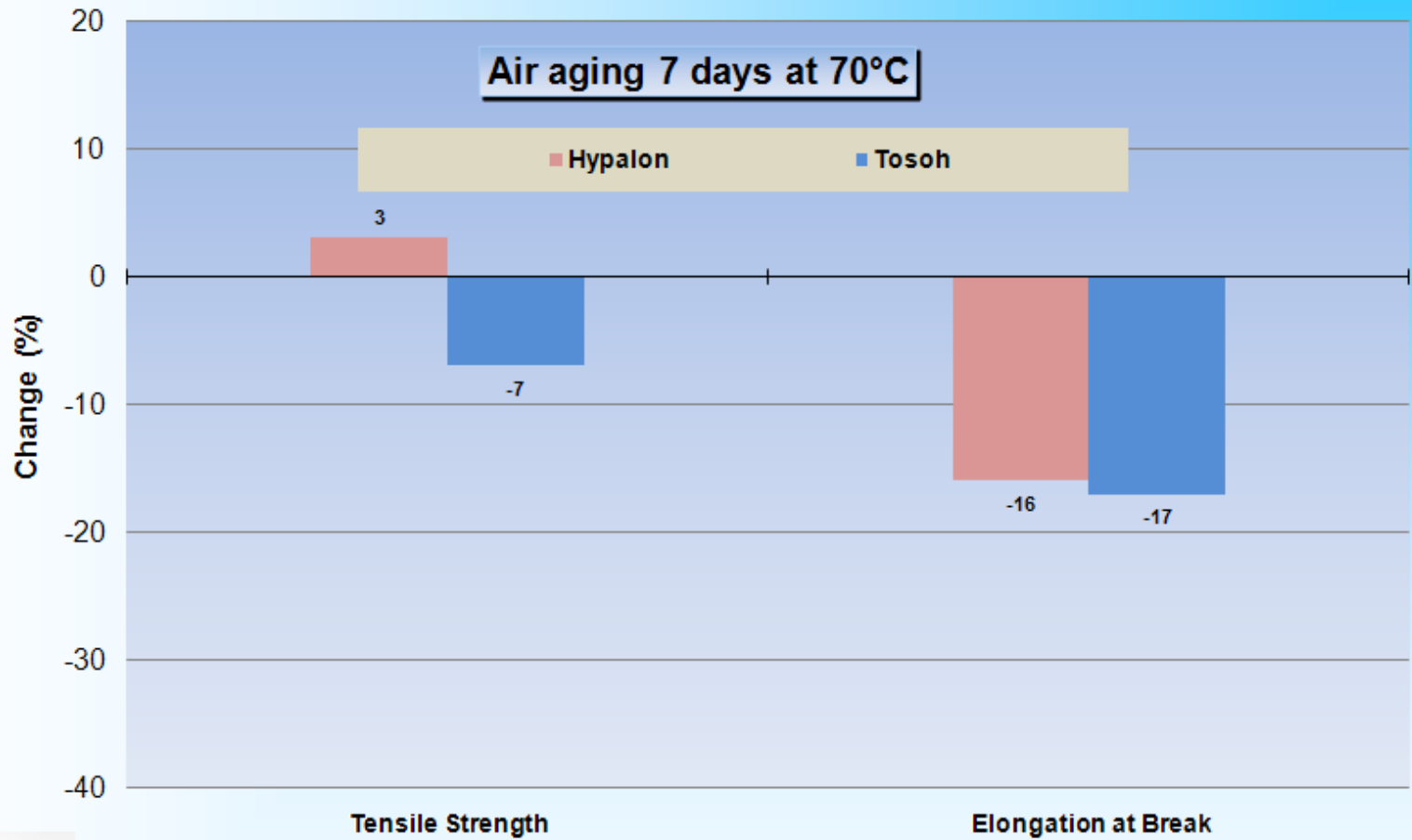
Comparative study on gloves





Initial properties are very similar

Gaps are not significant according to measuring uncertainty (ISO 37, EN 388)

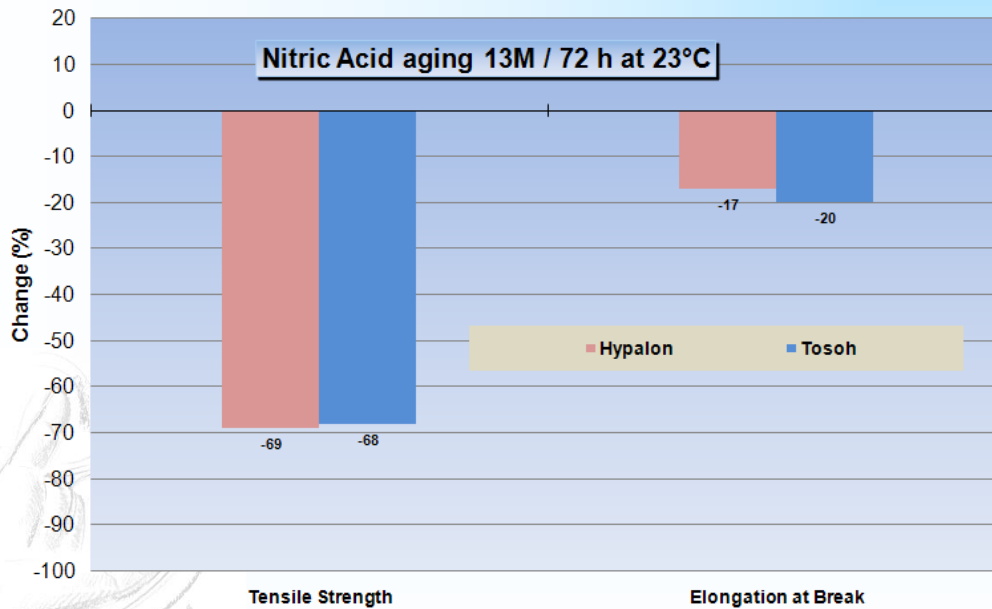
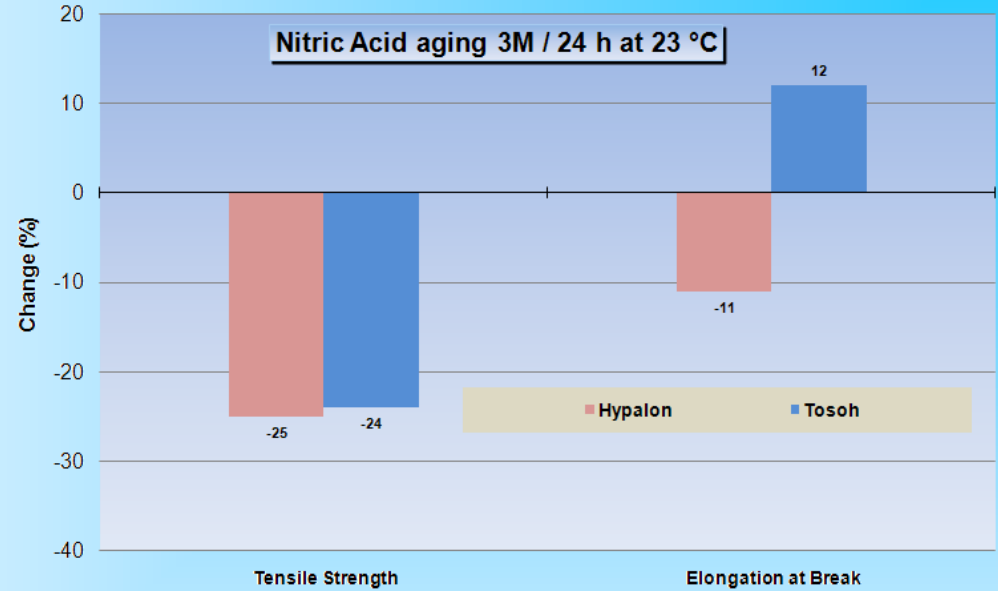


▪ No difference after hot air aging

Gaps are not significant according to measuring uncertainty (ISO 37, ISO 188)

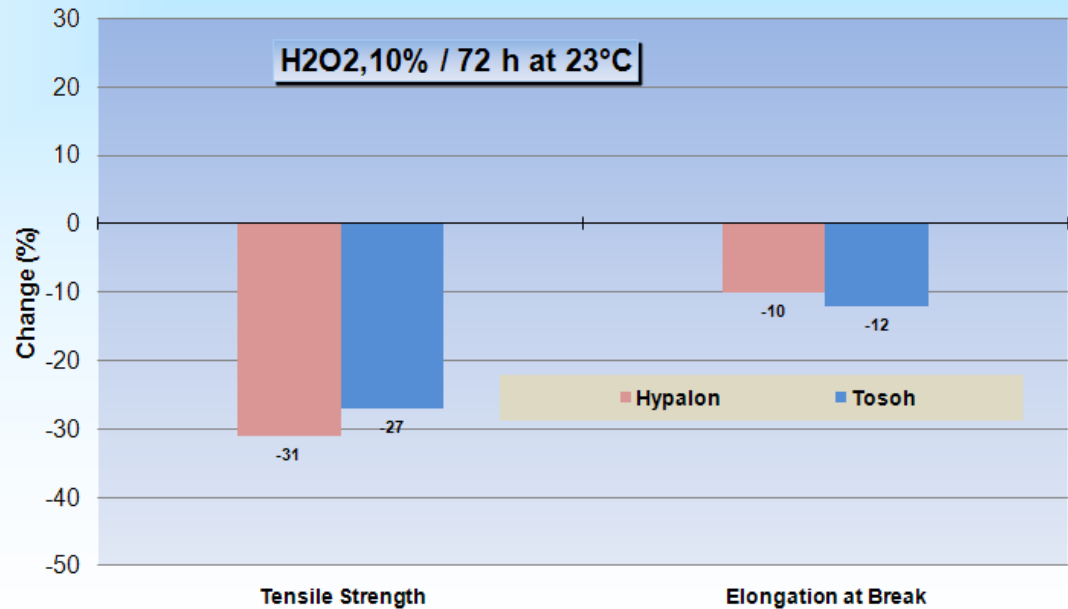
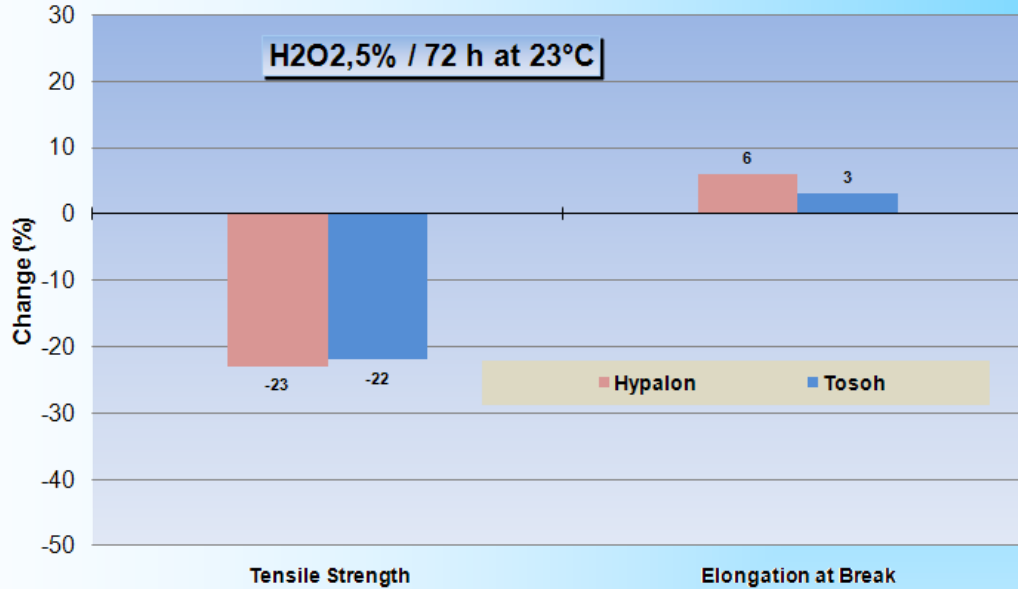


Nitric acid behaviour, 3 & 13 M



Gaps are not significant according to measuring uncertainty (ISO 37, ISO 1817)

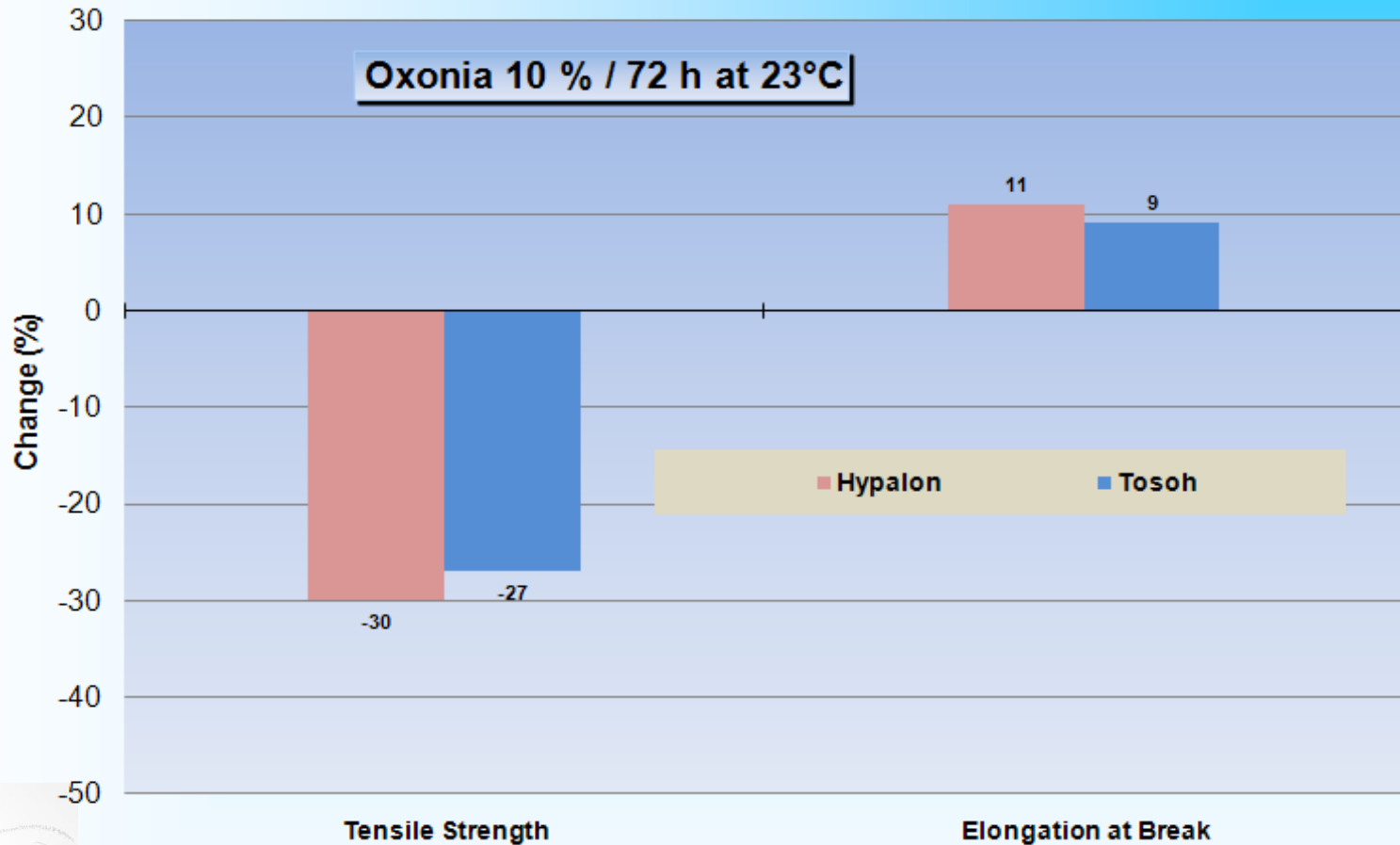
Hydrogen peroxide (**H2O2**) behaviour, 5 & 10%



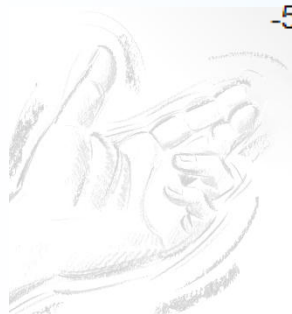
Gaps are not significant according to measuring uncertainty (ISO 37, ISO 1817)

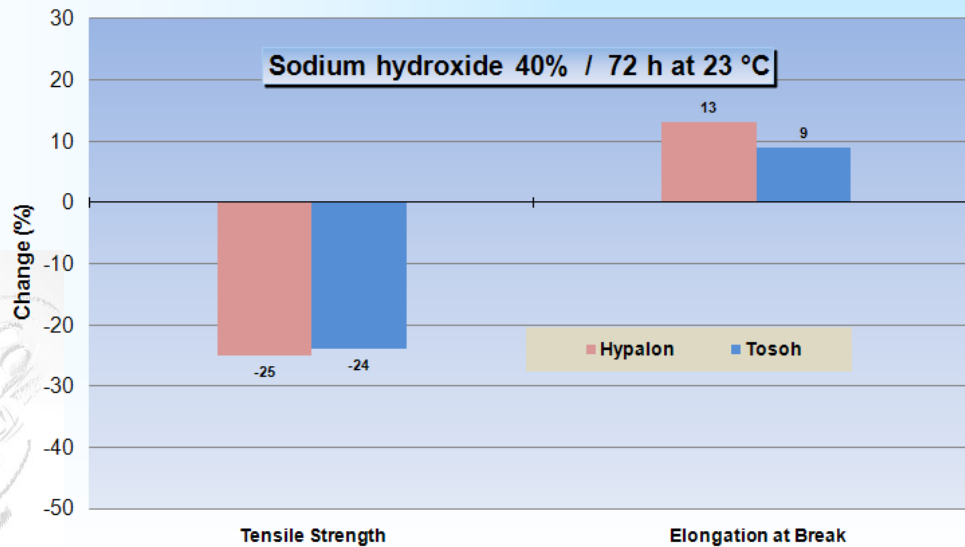
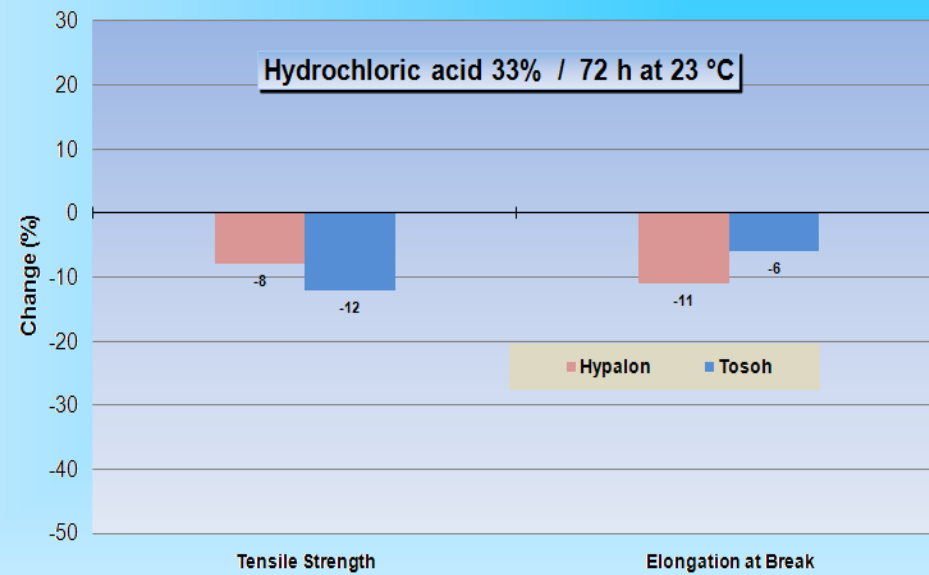
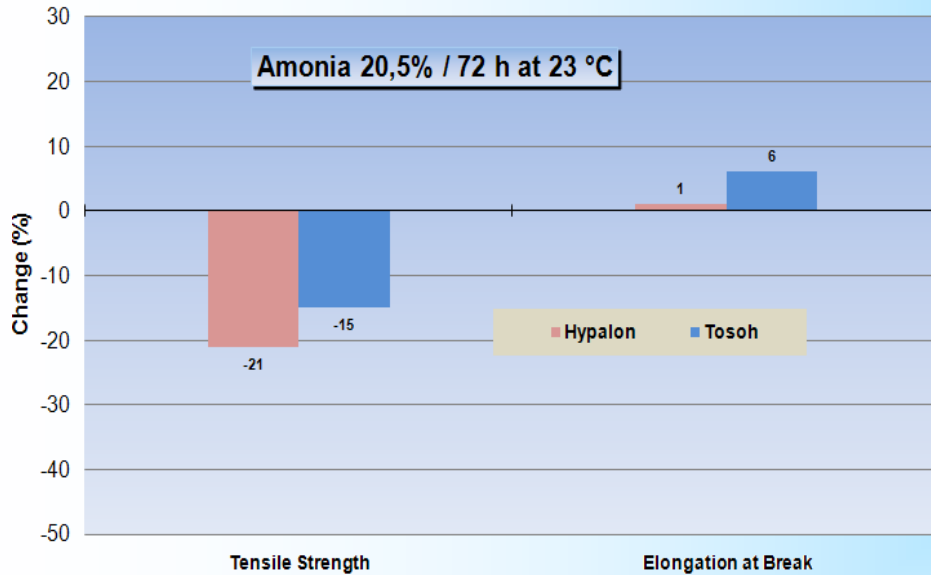


*Oxonia = peracetic acid + hydrogen peroxide + acetic acid



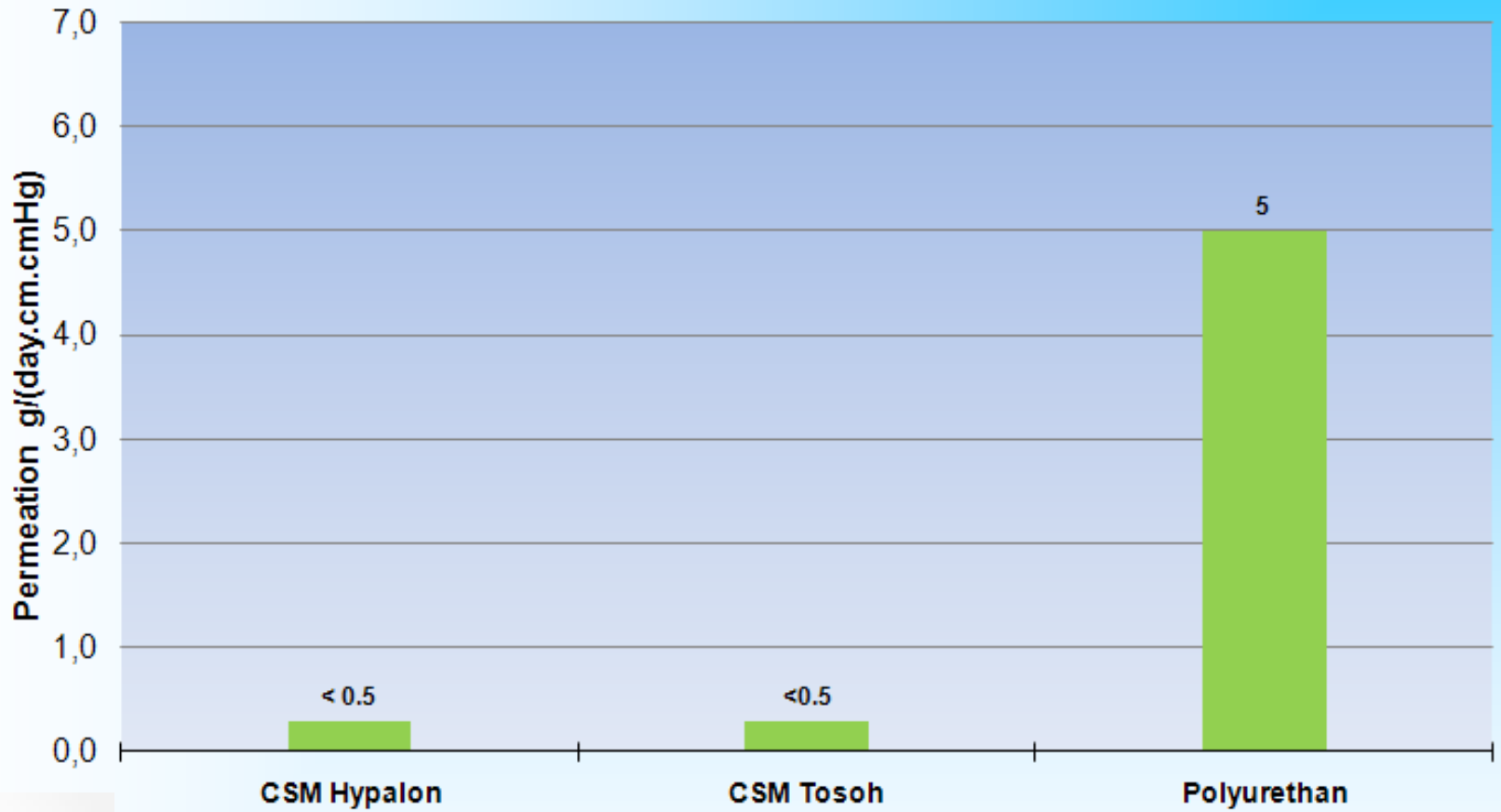
Gaps are not significant according to measuring uncertainty (ISO 37, ISO 1817)





Gaps are not significant according to measuring uncertainty (ISO 37, ISO 1817)





Same level between CSM Hypalon and CSM Tosoh



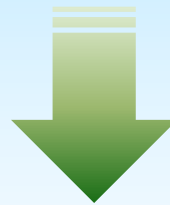
TOSOH grade CSM provides :

- ❑ ***same initial mechanical properties***
- ❑ ***same air aging and chemicals behaviour***
(nitric acid, H₂O₂, Oxonia, ...)



PIERCAN gloves based on TOSOH grade are equivalent to those based on HYPALON grade :

- No change of composition of formulation (only CSM trademark change : Hypalon => Tosoh)***
- No Change of process***
- No change of dimensionnal and aspect***
- Same mechanical and chemical performances***



***Regarding all these results,
PIERCAN validate Tosoh grade as
equivalent to Hypalon***

