



Get the Kettle Going

Why Checking Your Steam Sterilisation Procedures for Liquids Is so Important



IVI - National Reference Centre for highly infectious animal diseases:

- Diagnosis, surveillance and control of highly contagious animal diseases
- Approval authority for vaccines and sera for animals
- Research and development
 - > Foot and mouth disease
 - ➤ Classical swine fever
 - ➤ Avian influenza
 - ➤ Swine vesicular disease
 - ➤ Japanese encephalitis
 - ➤ West Nile
 - >SARS/MERS
- Since 1.1.2014: two sites (Bern (BSL1-2) – Mittelhäusern (BSL3 - BSL3Ag))





Site at University of Berne

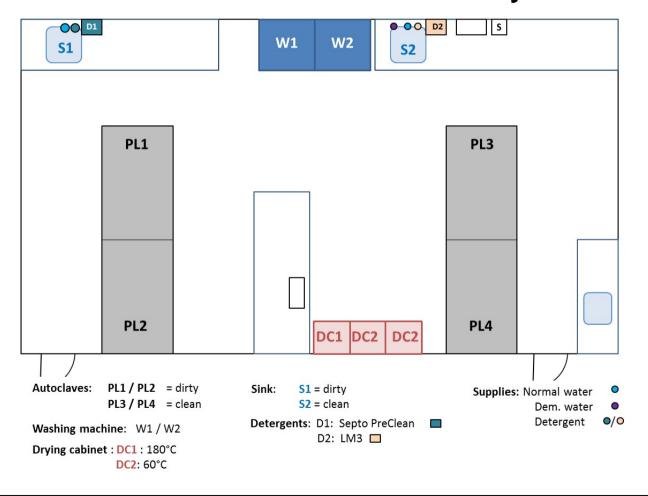
5 institutes:

- Veterinary Bacteriology
- Virology and Immunology
- Parasitology
- Animal Pathology
- Centre for Fish & Wildlife Health
- Research & Diagnostic
- BSL-2 labs
- ~200 employees
- 1300 m² lab & 950 m² office space



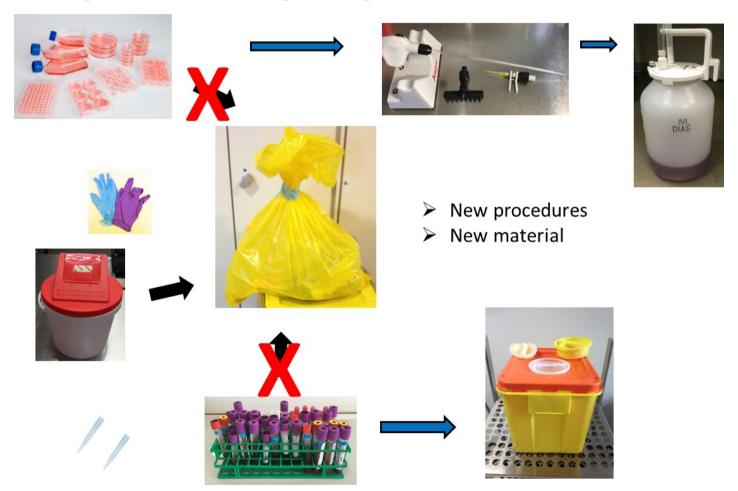


New Decontamination & Sterilisation Facility



Background

Strategic Decision Regarding Separation of Solid & Liquid Waste





Problem

Switch from glass to plastic bottles

- Safety issues with glass bottles (weight, fragility)
- New equipment with plastic bottles (vacuum suction devices)



Initial autoclave runs failed

➤ Time out during initial warm up phase (temperature of 121°C not reached after 2 hours)

Types of Bottles



0.1 | Schott



0.5 I Schott



1 I Schott



5 I Pyrex



5 I Polypropylen



4 I Polypropylen

Types of Autoclaves

MMM – pass-through



Belimed – pass-through

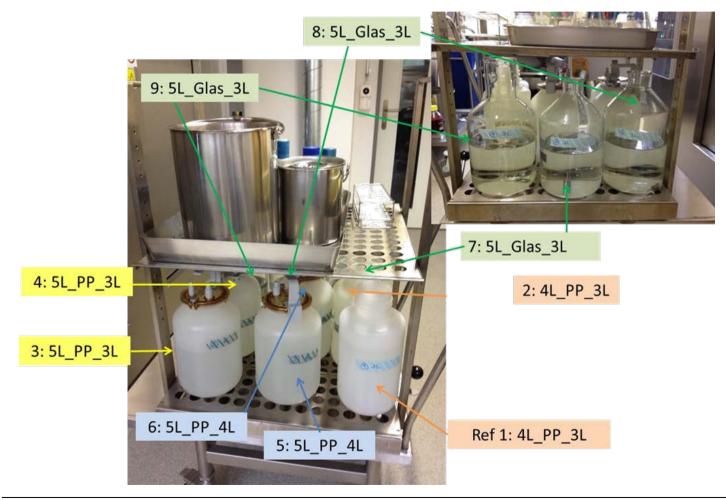


Systec – top-loading





Autoclave Load



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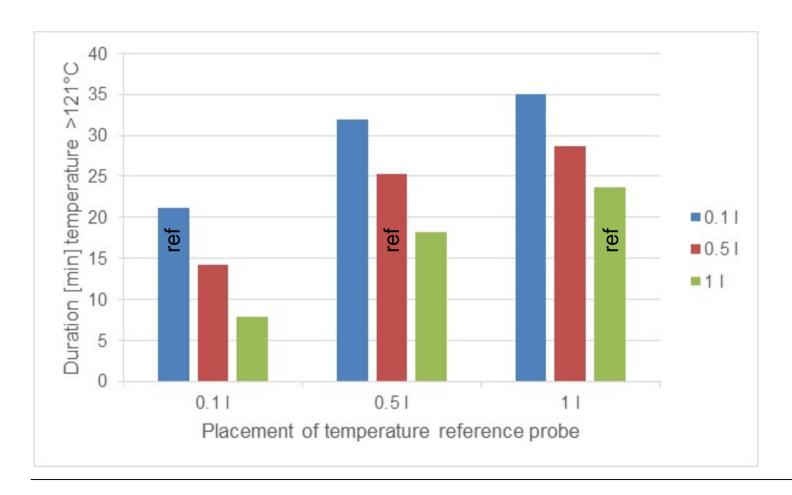
Aims

Answer the following questions:

- Influence of temperature probe reference?
- Influence of liquid volume vs. container volume?
- Differences between chamber temperature glass bottles plastic bottles?
- Differences between types, makes and brands of autoclaves?

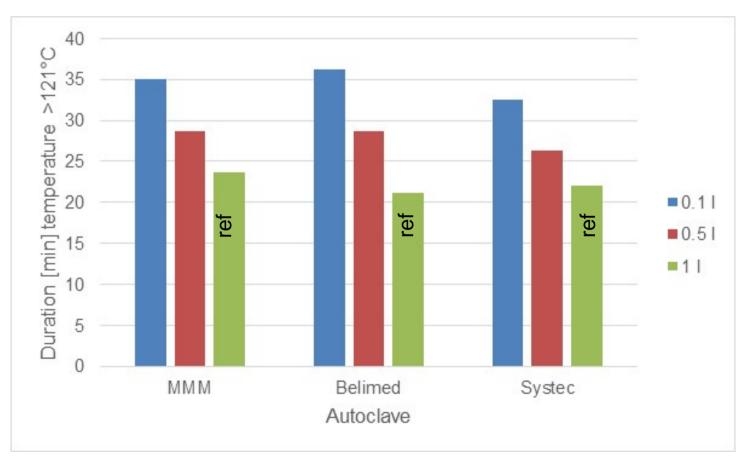


Effect of Placement of Temperature Reference Probe



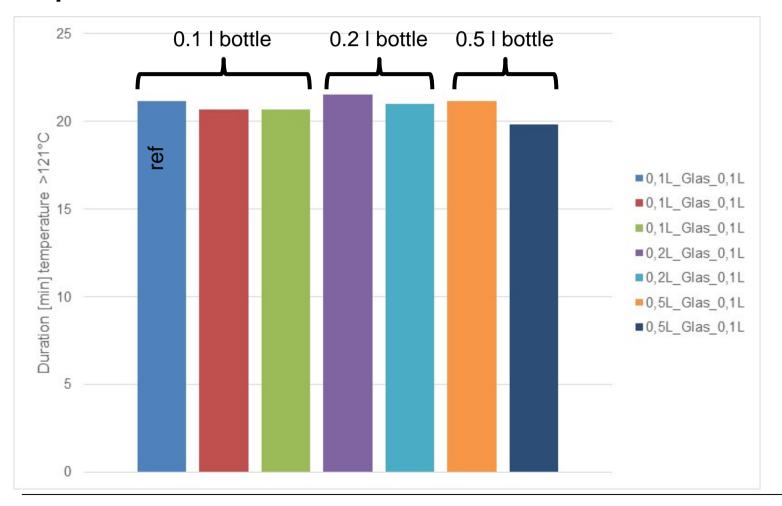


Effect of Placement of Temperature Reference Probe – Autoclave Variances?



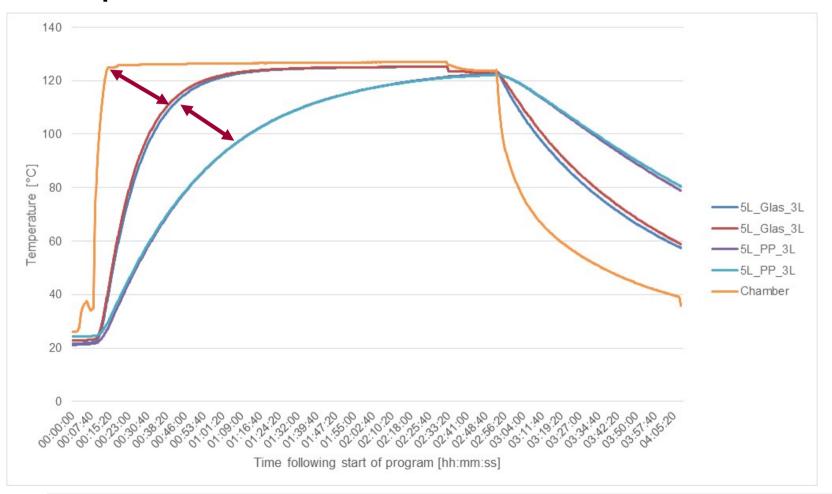


Liquid Volume vs. Container Volume





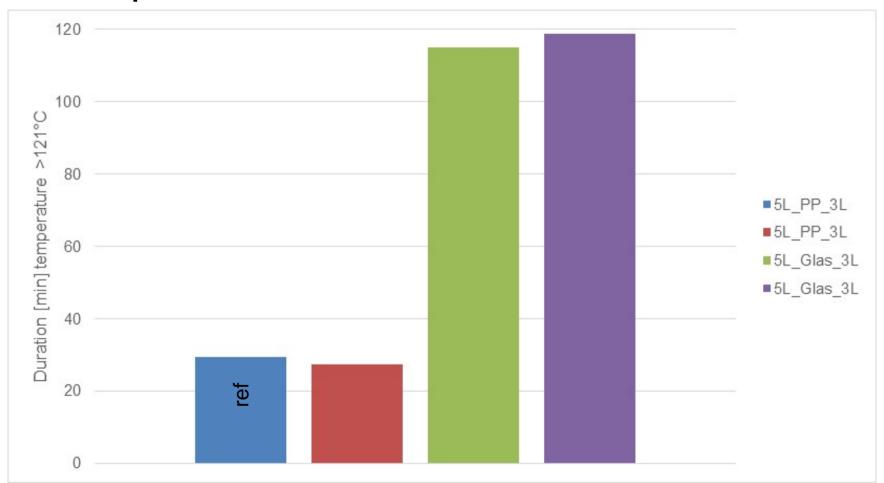
Temperature: Chamber vs. Glass Bottles vs. Plastic Bottles



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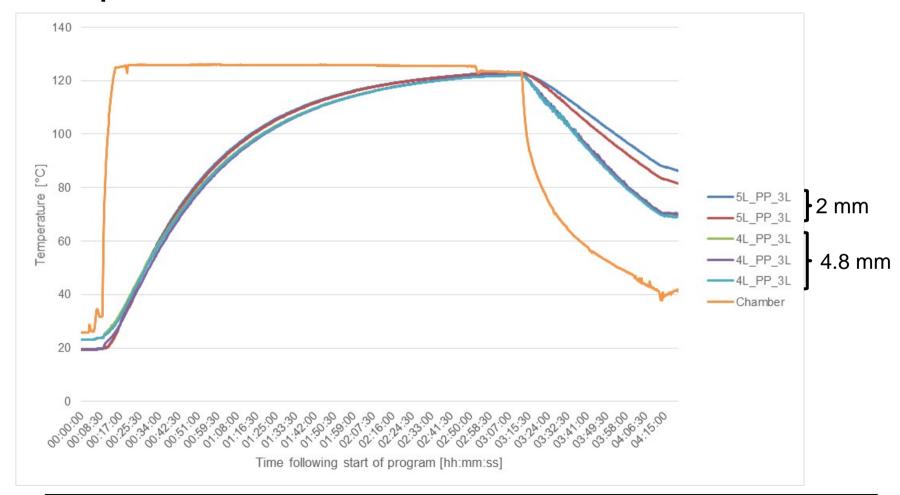


Temperature: Chamber vs. Glass Bottles vs. Plastic Bottles



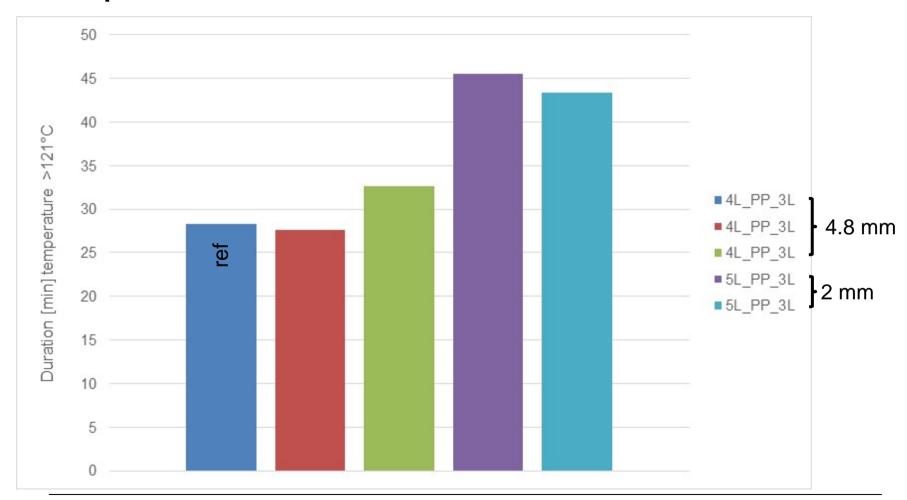


Temperature: Thickness of Container Walls





Temperature: Thickness of Container Walls



Conclusions

- Check your programs for (liquid) sterilisation
- Inactivation of liquid waste vs. sterilisation of liquids (media, buffer, ...)
- Define liquid loads (containers, liquid volumes)
- Define placement of temperature reference probe for your loads

Acknowledgements

Linda Hüsser Urs Pauli

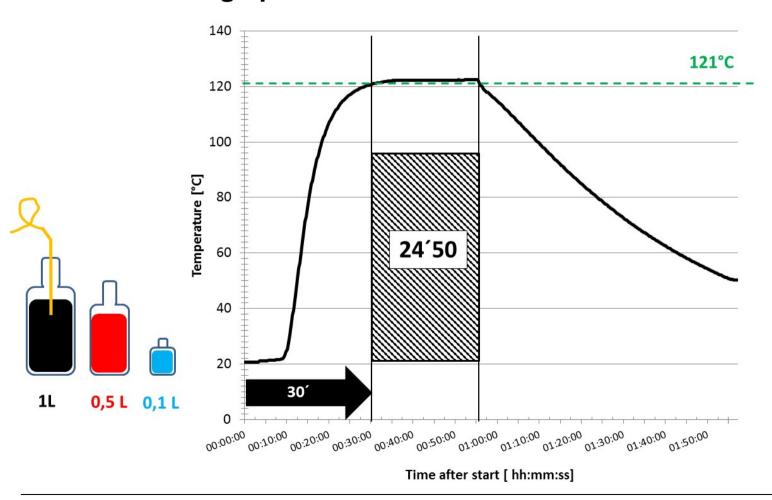


Questions





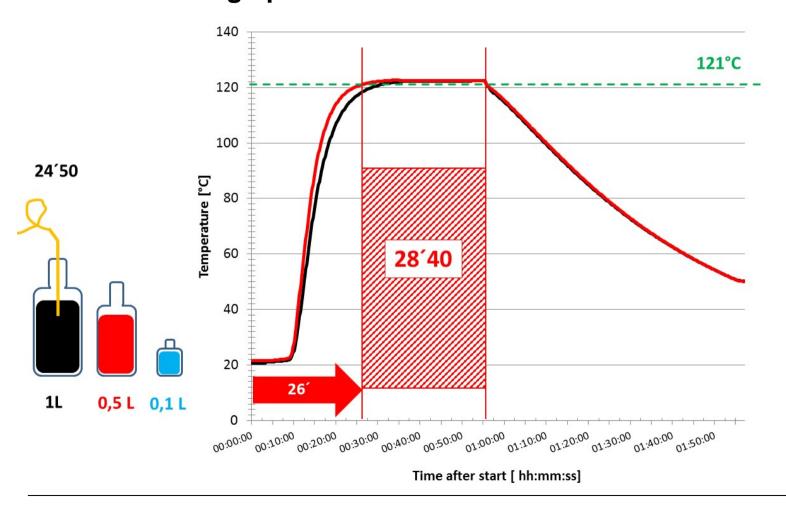
Different Heating up Times



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Different Heating up Times





Different Heating up Times

