

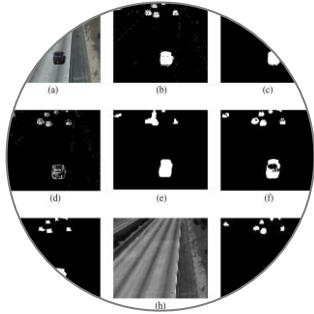
Challenges from a machine supplier's perspective



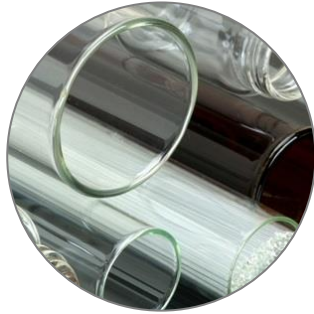
Felix Riehn

Head of Product Management
Körber Pharma Inspection GmbH

Overview of **inspection** topics



Challenges for
image subtraction



Tubular glass
VS molded glass



Amber
glass

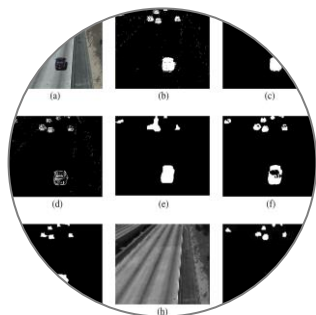


Low
fills

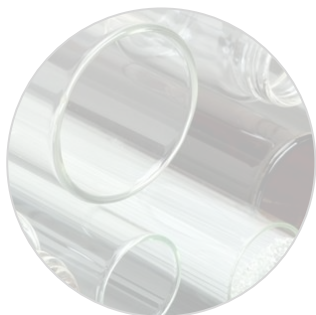


Printed
containers

Overview of **inspection** topics



**Challenges for
image subtraction**



Tubular glass
VS molded glass



Amber
glass

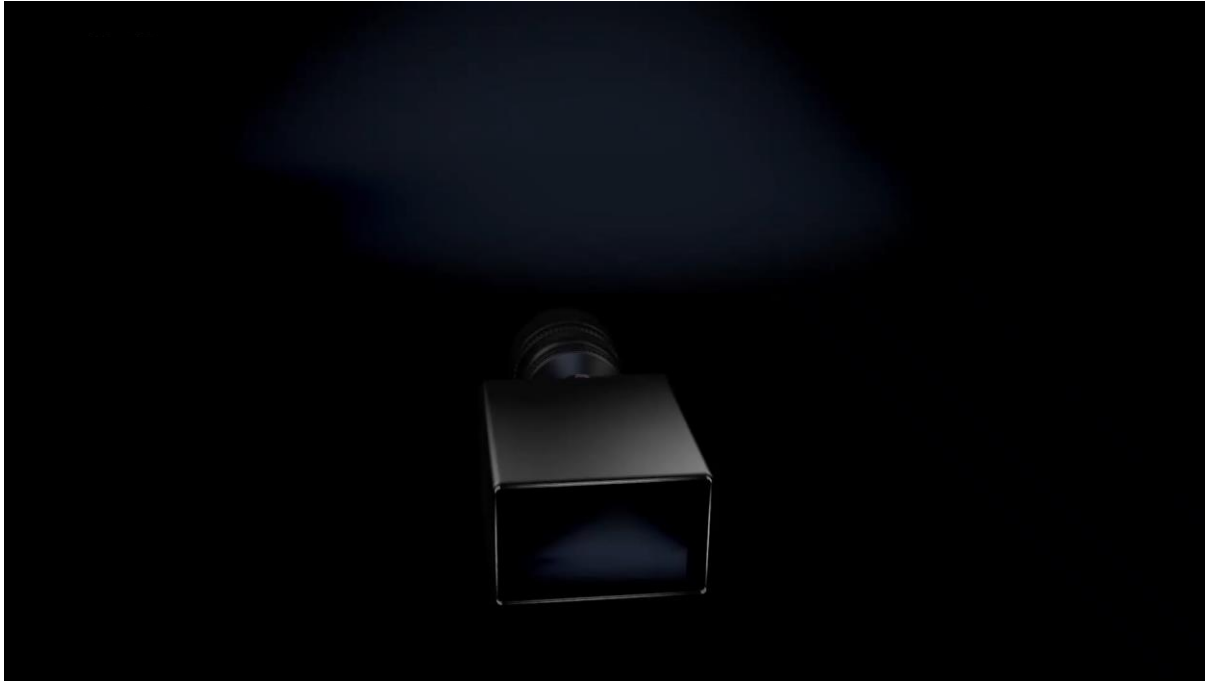


Low
fills



Printed
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How does image subtraction work?



A particle has to move in order to be detected by image subtraction

Sticking particles on the plunger hamper detection rates

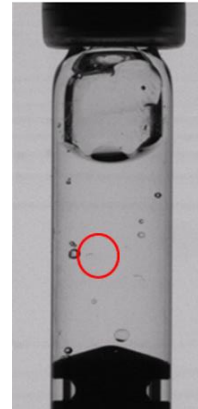
Plunger



Stopper



Sidewall



Needle cone



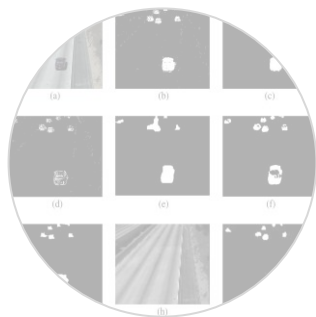
Floating particles also jeopardize image subtraction

in fill level
(meniscus)

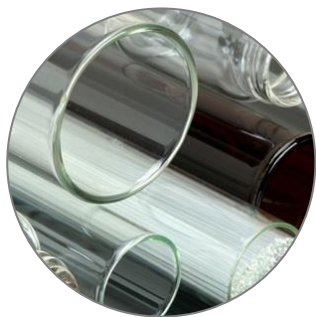


Especially for lightweight
particles
(e.g. hairs or plastic fibers)

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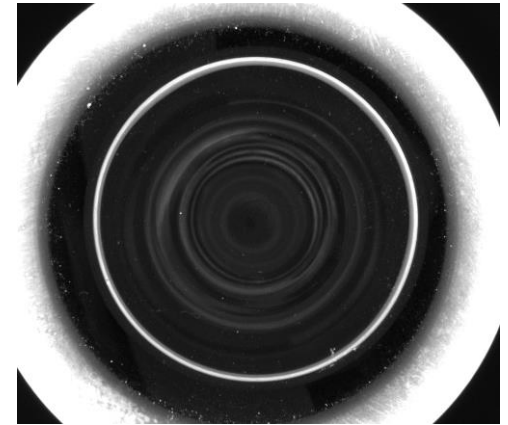


Printed
containers

Pro's & Con's of tubular glass

- + Less reflections on the glass
- + An even glass sidewall
- + Better transparency
- + An even glass bottom
- + No forming lines on sidewall
- Thinner glass compared to tubular glass may break easier for large volume containers (> 50 ml)

Tubular glass

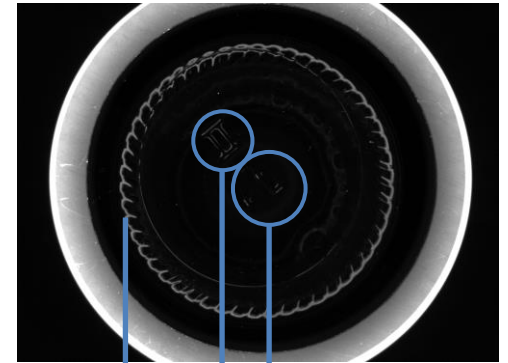


Pro's & Con's of molded glass

- Less uniform wall thickness
- Uneven surface
- Changing shapes
- Glass inclusions
- Glass colour changes
- Welding edges and stipple bearing surface
- + More stable for large volumes (> 50 ml)



Molded glass

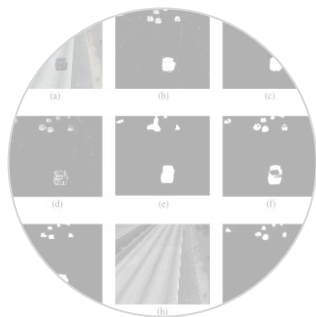


symbols

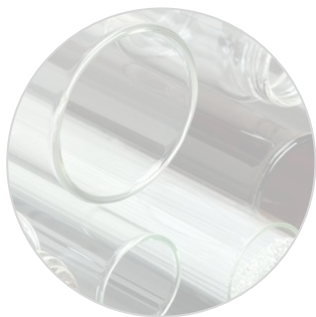
numbers

stipple bearing

Overview of **inspection** topics



Challenges for
image subtraction



Tubular glass
VS molded glass



**Amber
glass**



Low
fills



Printed
containers

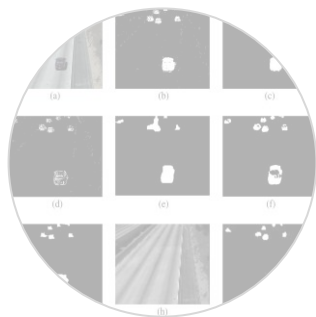
Pro's & Con's of amber glass

- Higher light intensity required
- Stronger light reflections
- Difficult detection of particle defects due to lower glass transparency
- + Glass protects medication against sun light

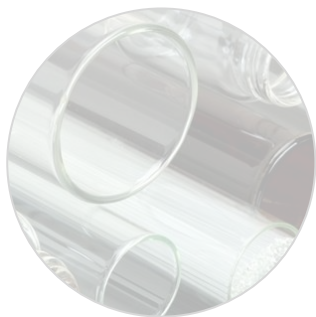


→ **Assumingly, ~ 5 % of all vials are made of amber glass**

Overview of **inspection** topics



Challenges for
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Tubular glass
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Amber
glass



**Low
fills**



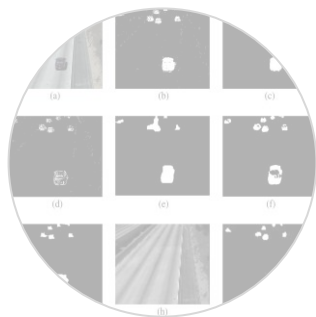
Printed
containers

Disadvantages of low fill products

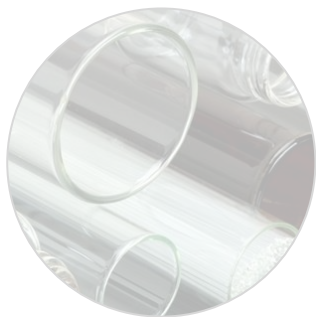
- Complicate CCIT inspection (no wetted surface)
- Make particle inspection difficult (static inspection as particles would stick on sidewall after rotation)
- Fill level inspection becomes difficult
- More space for droplets (sidewall, shoulder, neck)
- Welding edges and stipple bearing surface
- More unfilled space (waiting time after rotation)



Overview of **inspection** topics



Challenges for
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Tubular glass
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glass



Low
fills



**Printed
containers**

Printed containers

Printed containers will limit the inspection view on ...

- Fill-level
- Particles
- Sidewall
- Plunger



Overview of **handling** topics



Large volume
containers



Unstable
containers



Overlapping needle
shields

Overview of **handling** topics



Large volume
containers



Unstable
containers



Overlapping needle
shields

Large volume containers

Large volume products will be difficult to handle due to ...

- Weight (rotation speed limitations, vacuum holding, etc.)
- Dimensions (star wheel pocket size, space in carousel, etc.)



Overview of **handling** topics



Large volume
containers



**Unstable
containers**



Overlapping needle
shields

Unstable products

Unstable containers like cartridges ...

- Could fall during the infeed, causing glass breakage
- Could fall during the outfeed into Akylux-Trays, causing glass breakage, product jam, machine stop, etc.
- Not suitable for inline transportation



Overview of **handling** topics



Large volume
containers

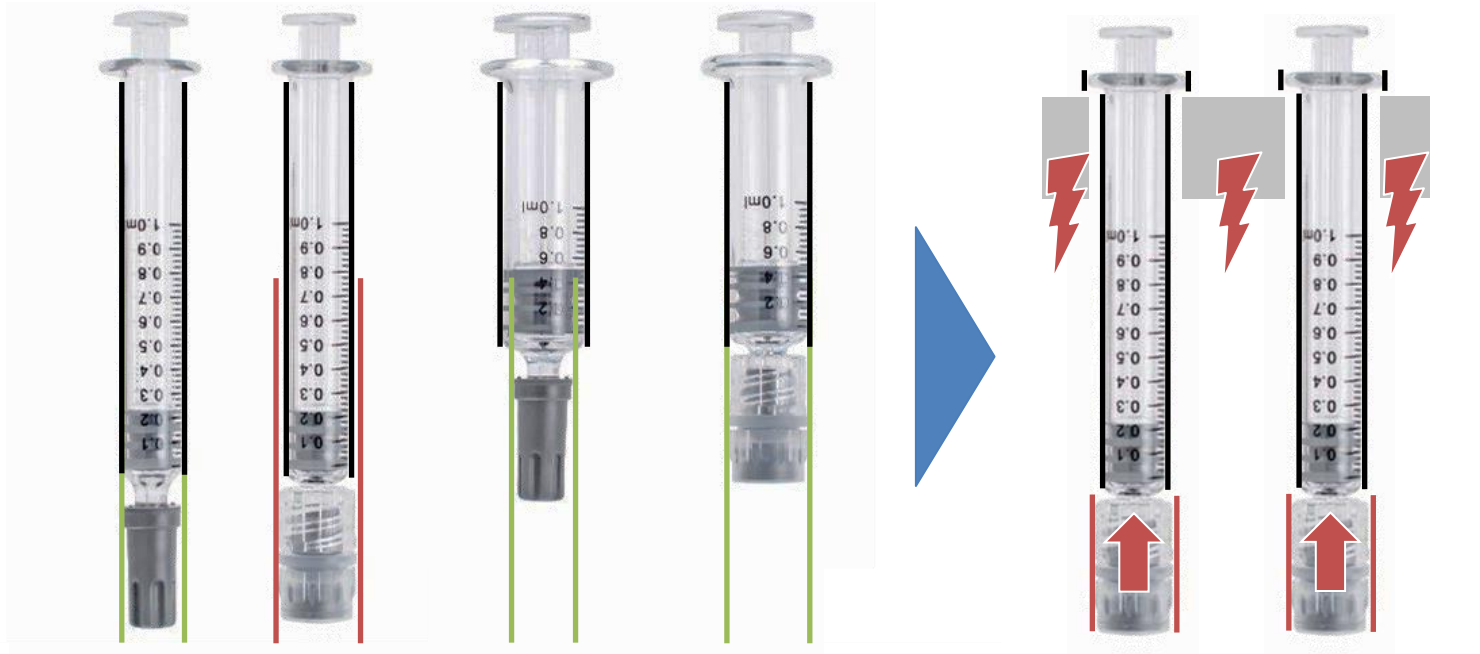


Unstable
containers



**Overlapping needle
shields**

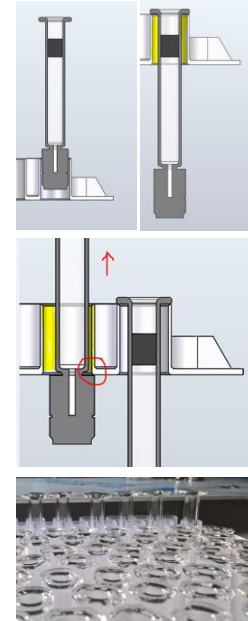
Overlapping needle shields



Overlapping needle shields

Overlapping needle-shield or luer locks will ...

- Require high accuracy during de- & re-nesting
- Have speed limitations
- Result in a lot of space and wiggling of the syringes in the nest
- Face the risk that the overlapping needle shield will pull the nest upwards
- Syringes stand at an angle in the nest after being lifted by the lifting station



Thank you!



PDA
TRAINING