

# Hands on basic instructions

Markus Lankers, PhD  
November 2025  
markus.lankers@mibi-c.com



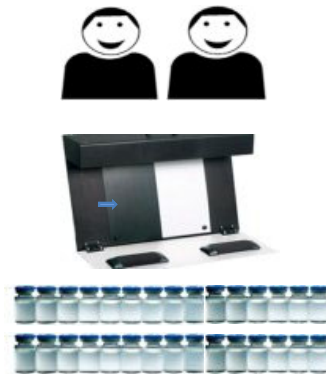
# Goal of the Experiments

2

- Identify important parameters
- Recognize behavior of different particles
- It's hard to be an inspector even for half a day



# Test Set



- Test set contains 28 vials
- Blanks and rejects
- Every Inspector has to inspect all 28 vials in each experiment
- Patiently wait until the class is ready to move on to the next experiment



# Setup of the instrument



Switch on  
both lamps



Measure light  
intensity. Mark  
a position at ~  
3000 Lux



Mark a position  
at ~ 3000 Lux

# Tools



# Tools

- Remove cover from sensor
- Select measurement range
- Just listen to the metronome while inspecting to get the right timing



# Inspection Technique

- Pick up vial holding at approximately a 30-degree angle
  - **bring to the black and then the white background** to inspect for any heavy particles on the lower portion of the vial bottom.
- Gently swirl to inspect for any fine sediment on the bottom of the vial in **both backgrounds**.
- **In front of the black background**, Fully invert to fully 'wash' the stopper area, return upright, and swirl the vial looking for particulate matter.
- **In front of the white background**, Fully invert, return upright, and swirl lookin for particulate matter.
- Record results on data sheet.



# Training

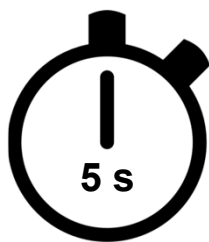
- Two vials of each set (marked with a dot) contain easy to observe particles
- Make yourself familiar with swirling and inverting for a couple of minutes with these vials to practice the particle detection
- Try swirling and inverting



## Exp. 1: Standard condition



Inspect at  
marked position



Inspection time  
5s black, 5 s  
white  
background



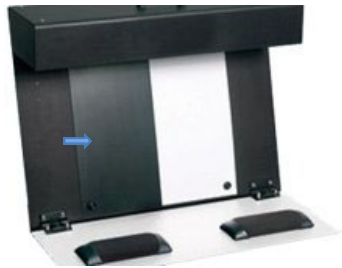
Swirl or  
invert



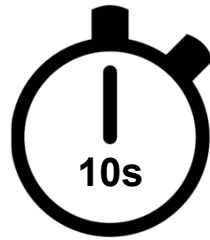
Record  
result

## Exp.2: Elevated inspection time

11



Inspect at  
marked position



Inspection time  
10s black, 10s  
white  
background



Swirl or  
invert



Record  
result

## Exp.3: Reduced Light intensity - setup

12



Switch off  
one lamp



Measure light  
intensity



Mark a position  
at ~ 1500 Lux

ML9

**ML9**

**fehler**

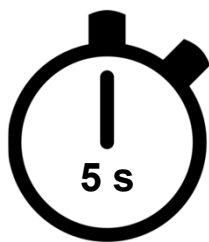
Markus Lankers; 04.04.2017

## Exp.3: Reduced Light intensity

13



Inspect at  
marked position



Inspection time  
5s black, 5 s  
white  
background



Swirl or  
invert



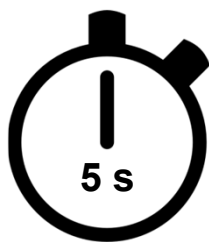
Record  
result

## Exp.4: No agitation

14



Inspect at  
marked position



Inspection time  
5s black, 5 s  
white  
background



No  
Swirling  
or  
inverting



Record  
result