Inspector selection and Qualification

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May 2019

Topics

- Selection criteria
- Trainings process
- Test Kits
- Performance Monitoring
- Breaks

Manual Inspection

Objective of the Manual Inspection Process:

Detect and remove units of drug product with predefined defects in a reproducible manner in a controlled process

You have to know what your are looking for: Training is essential

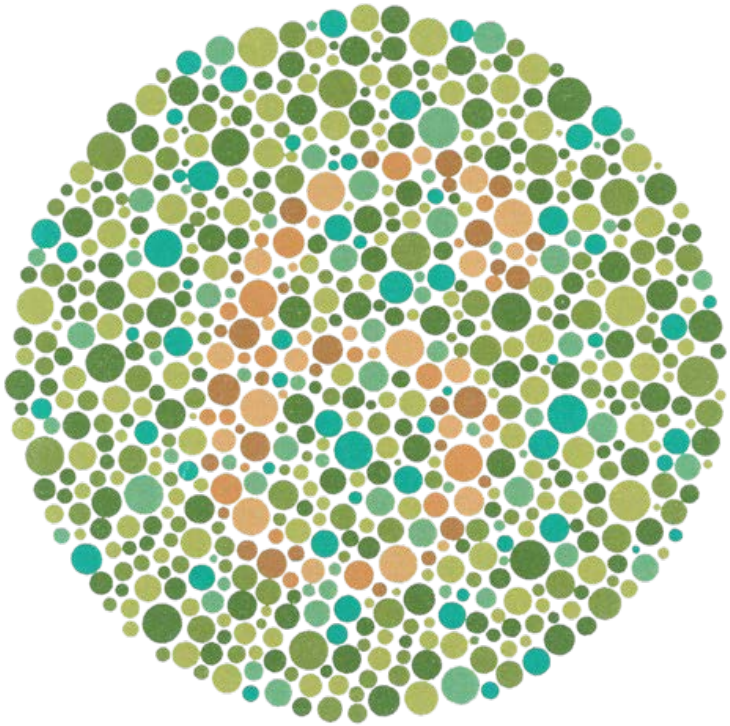
Selection Criteria

Prerequisites

- Pre-employment Health check
- Pre-employment eye test – requirement > 90 % corrected

All operators should have a near vision visual acuity / color blindness test prior to inspector training
For near vision. 14/14 (the ability to read what the average person can read at a distance at 14 in.)


J. G. ROSENBAUM POCKET VISION SCREENER
95
874
2843
638
8745
63925
42836
37425
distance equivalent
Point
Jaeger
26 16
14 10
10 7
8 5
6 3
5 2
4 1
3 1+
Card is held in good light 14 inches from eye. Record vision for each eye separately with and without glasses. Presbyopic patients should read thru bifocal segment. Check myopes with glasses only.



Selection Criteria

Character
The inspector should realize the importance of his task
The inspector should be able to perform repetive work
Ability to learn and adapt new ideas
The inspector should have good observation skills and should also be patient

483 Observations

Training

The training of personnel to perform the 100% visual inspection does not include:

b. Verification of operators abilities to detect defects at speeds used in production for the ….. sorting machines.
c. A provision for recertification.

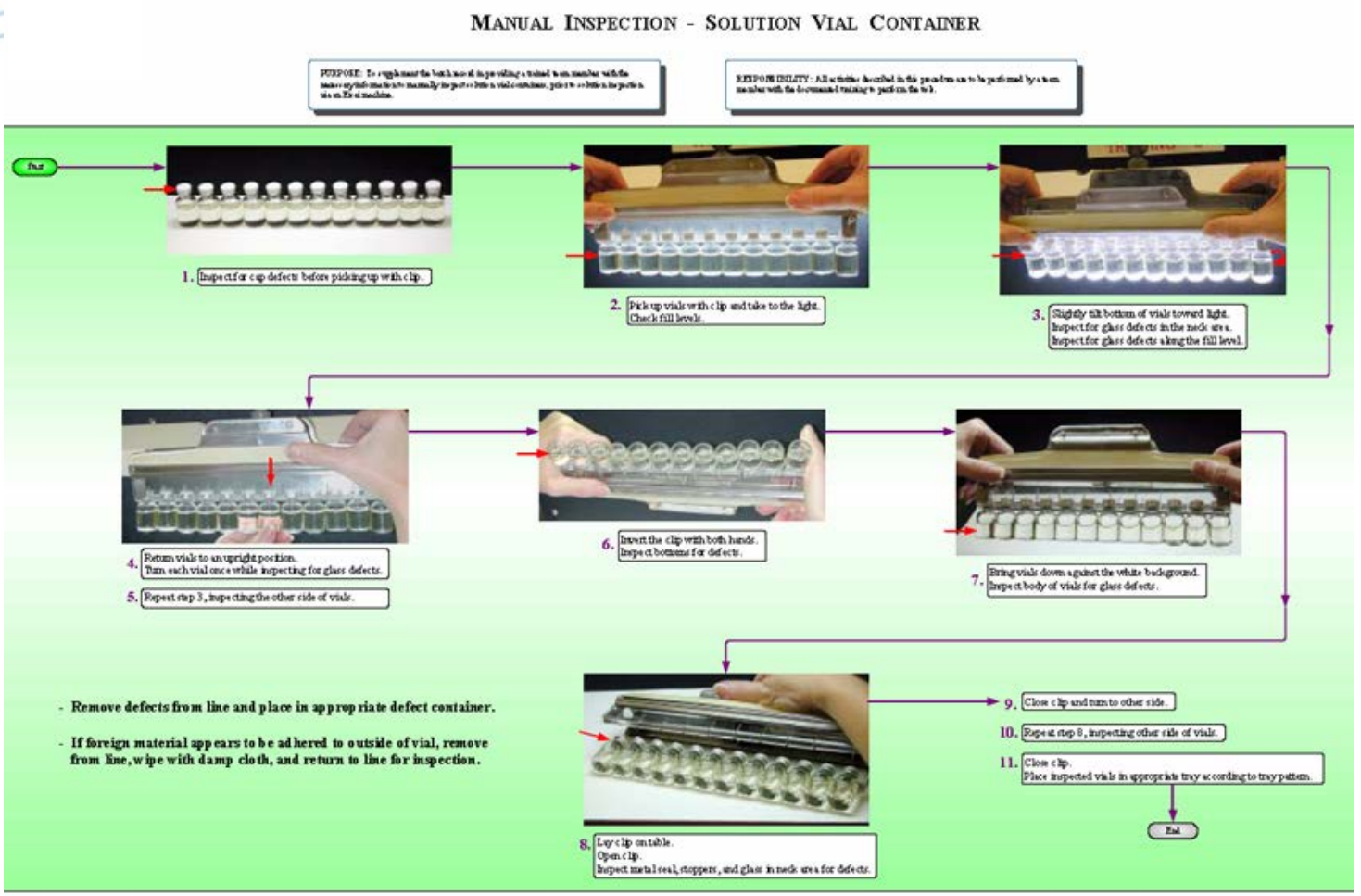
a. Inspectors for final finished product vials are not provided the training to assure adequate abilities to detect particulates smaller than one millimeter.

Training of Visual Inspectors - Overview

1. Eye inspections are performed prior to employment and at least once annually
2. Training of relevant SOPs and Work-Instructions
3. Introduction to defects using training kits
4. Learning individual defects using training kits and defect libraries
5. **Qualification** as an inspector
6. **Requalification** once a year

Training of Visual Inspectors Example Introduction

- All training is defined in a SOP
- Classroom instruction
- Product specific physical characteristics
- Small number of defect vials with large particles
- Introduce manipulation methods
- Move to real inspection station
- Practice manipulation, timing & detection
- Seeded containers no blanks – familiarization.


MANUAL INSPECTION - SOLUTION VIAL CONTAINER
Start
1. Inspect for cap defects before picking up with clip.
2. Pick up vials with clip and take to the light. Check fill levels.
3. Slightly tilt bottom of vials toward light. Inspect for glass defects in the neck area. Inspect for glass defects along the fill level.
4. Return vials to an upright position. Turn each vial once while inspecting for glass defects.
5. Repeat step 3, inspecting the other side of vials.
6. Invert the clip with both hands. Inspect bottoms for defects.
7. Bring vials down against the white background. Inspect body of vials for glass defects.
- Remove defects from line and place in appropriate defect container.
- If foreign material appears to be adhered to outside of vial, remove from line, wipe with damp cloth, and return to line for inspection.
8. Lay clip on table. Open clip. Inspect metal seal, stoppers, and glass in neck area for defects.
9. Close clip and turn to other side.
10. Repeat step 8, inspecting other side of vials.
11. Close clip. Place inspected vials in appropriate tray according to tray pattern.
End

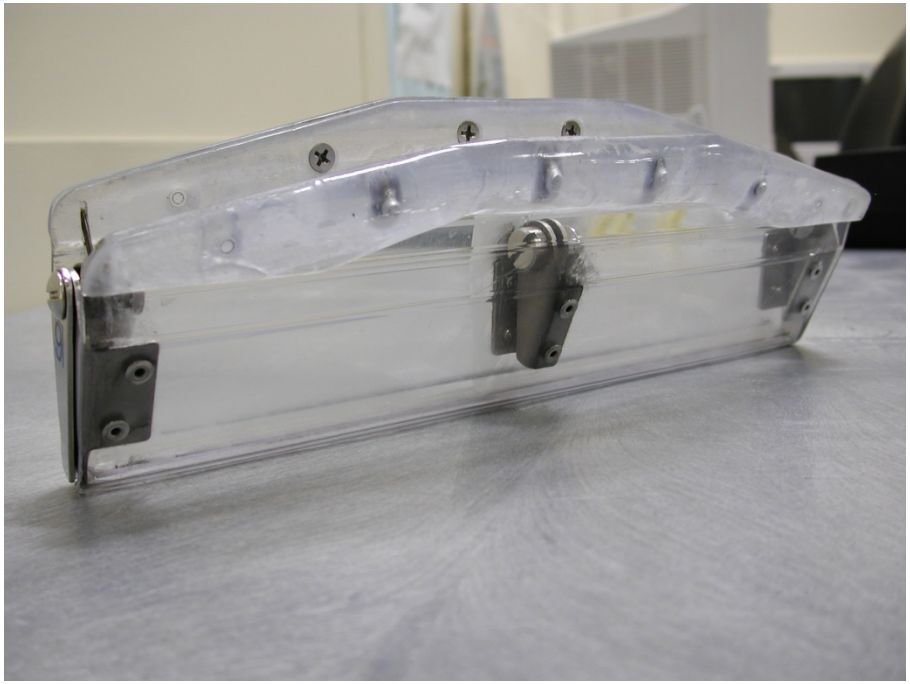
Training of Visual Inspectors

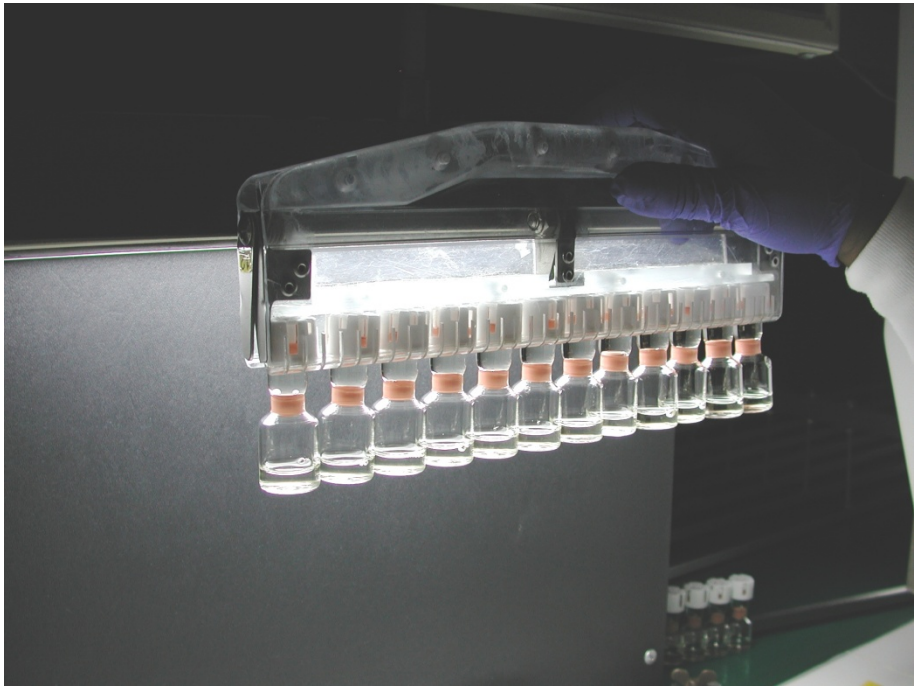
- Seeded containers diluted with blanks-familiarization.
- Distinguish particle types.
- Distinguish bubble forming Drug Products.
- Timing.
- Use of tools (e.g. clip)

Training of Visual Inspectors

- Best inspectors offer 'tricks', methods, advice
- Visual inspection under supervision and 100 % re-inspection (T-o-J)
- Further introduction to defects using test kits
- Qualification using test kits
- Requalification once a year

Training – Special Tools





Inspection Clip

483 Observations

Defect set

a. *The type of particles/defects are not always representative of the current manufacturing process or reflective of complaints received which may be generated from the equipment, components and materials used in the manufacturing process.*

b. *Examples of particles in suspensions. The set of vials used in training includes only vials of clear solutions with particles.*

Test Kits

- Inspectors must demonstrate proficiency of removing defects from a seeded population of typical "in-house“ defects.
- Definition: **Defect library** : - “Bible” of observed defects for one product / Constant growing library
- **Test Kits**: - defects are selected from Defect Library. Multiple examples of known defects. Consider criticality
- Requirement for adding new defect types to the library refreshing the defect library/test kits and annual assessment.
- Test kit should contain 5-15 % rejects

Building Test Kits: Points to consider

- Take rejects from process (best source but not always available)
- Define: Critical, Major, Minor and particle types
- Container properties: type, size, surfaces, etc.
- Package components.
- Liquid (physical) properties Inspection methods/techniques.
- Particle types, sizes and properties – Characterize the particles in your process
- Defect Library characterizations (knowledge)

Survey 2014 Results

- 98% describe defects and inspection conditions in a written procedure.

Qualification conditions

- - Simulated: 64%
- - Actual Manufacturing: 36%

Standards

- - Production Defects: 92%
- - Non-Spherical Standards: 35%
- - Spherical Standards: 33%

Test Kit: Example

Several test kits (3-10)

- Representative defined defects from routine production and specifically prepared units
- Kit is routinely checked after each test and annually

Test Kit (Example):
600 vials with 65 rejects adjusted to RZE e.g. 90 % acceptance criteria:

- 2 non detected critical
- 3 non detected major
- 5 non detected minors
- < 35 rejected good pieces

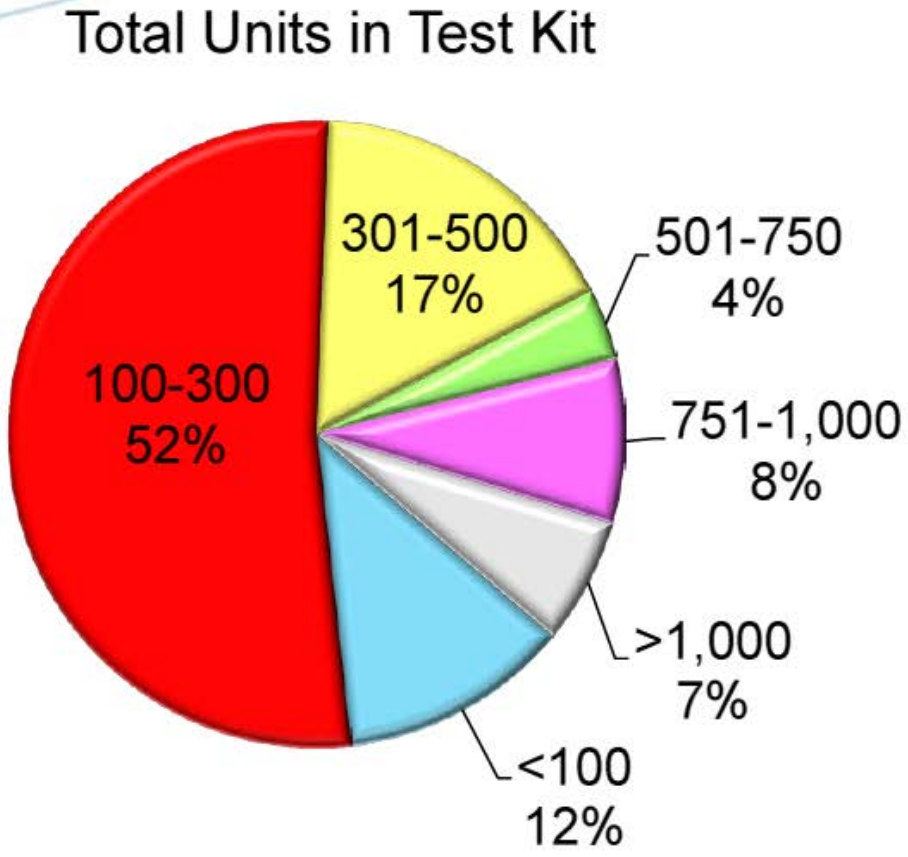
Test Kits

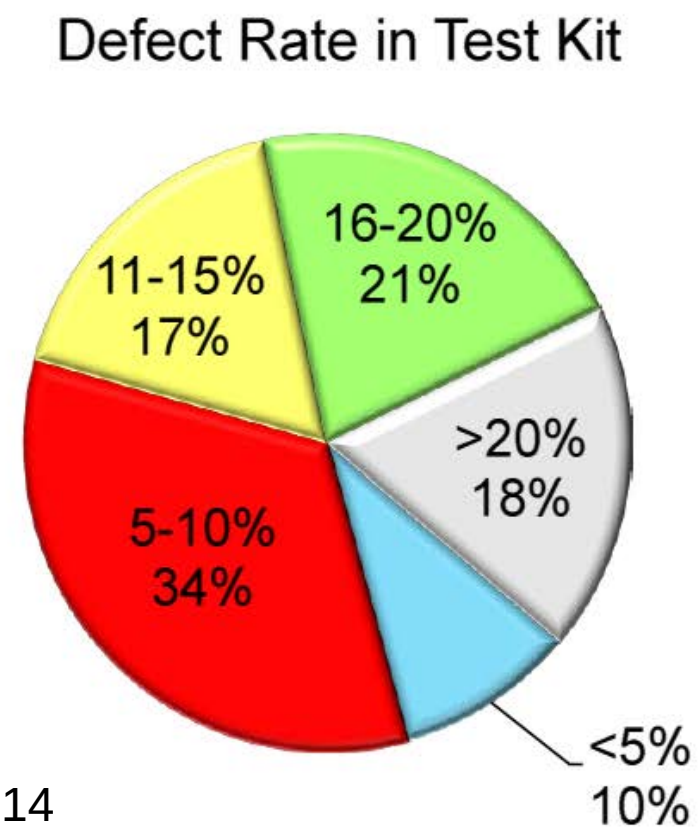
Time limits
Max. 120 minutes for qualification

Test sets can be UV marked. However, some lighting conditions can lead to visibilty of UV marks. UV marks can be lost

An better alternative is the use of QR barcode

The composition of test kits used to qualify inspectors.





Test Kits

Training and Test-Kits are routinely cleaned after usage cleaned and inspected for defects at least every 6 months

	Description	Classification	Amount
Vial			
1	Underfill/Overfill	MA	4
2	Black particle	MA	2
3	Glass particle	C	2
4	Fiber	MA	5
5	Scratches outisde	m	3
6	Crack	C	4
7	Missing flip off cap	MA	2
8	Spots on rubber	m	2
9	Damaged closure component	C	4
10	Precipitation	C	3
11	Dirty container	m	2

Performance Maintenance & Monitoring

Tray Audit

- Evaluation for missed defects in inspected tray
- On-line immediate feedback after inspection
- A customized database is maintained
- Profile individuals, shift, or unit results
- The inspectors product trays are audited at a rate of 1 full and 3 part trays each month making sure that each product is audited annually

Performance Maintenance & Monitoring

Procedure Audit

- Each inspector's inspection procedure is blindly audited to be sure that they are performing the correct inspection steps
- Confirm compliance to SOP
- Immediate feedback to inspector
- Each inspector is audited at a rate of 2 audits/week making sure that each product type is audited annually

Breaks

- Breaks help to keep inspector focues
- Minimum of 5 minutes per hour eye break
- Eye break is defined as “time away from the lamp” and may include:
  - Break (i.e. lunch, …)
  - Change-over of batch/order
  - Discussions, trainings, etc.

Rotation to different products

Acknowledgments

- Georg Roessling
- Roy Cherris
- John Shabushnig