

ABSTRACT



Visual inspection of injectable products is critical for ensuring that these drug products meet the required standards of quality. Additionally, production speeds increments and more complex processes presents other challenges for quality.

Visual Inspection is the most critical areas in the biosimilar industry. Having control of the inspection process will help increase the product quality as well as the control of the filling processes.

Controlled Visual Inspection Technique means that all areas of the units were covered during the execution of visual inspection technique. The inspection should be done under suitable and controlled conditions of illumination and background. Container closure integrity should be inspected using unit/container dimensions. Methodology should be consistent between inspectors, following inspection steps for consider a controlled technique and using the most effective defect kit for the inspector certification.

Using controlled technique the efficiency of the visual inspection increases as well as the quality of the product.

During detectability studies performed by Syrviatek during remediation projects it was observed a significant increase in the detectability of cosmetic defects and particles when comparing controlled and uncontrolled inspection techniques.

BACKGROUND



Visual inspection of injectable products is critical for ensuring that these drug products meet the required standards of quality. Additionally, production speeds increments and more complex processes presents other challenges for quality.

Parenteral manufacturers are facing increasingly strict quality standards that require them to produce products free of visible particles, reduce process/product variation, and minimize rejects.

Visual Inspection is the most critical areas in the biosimilar industry. Having control of the inspection process will help increase the product quality as well as the control of the filling processes.

In order to have control of the visual inspection mostly the inspectors have the great responsibility. In some cases is the training the issue and sometimes the system.

Most of the biosimilar industries uses manual visual inspection and other uses the automatic process but both required a high level of understanding, training, and also defect standards to challenge both processes. Controlled visual inspection will increase quality.

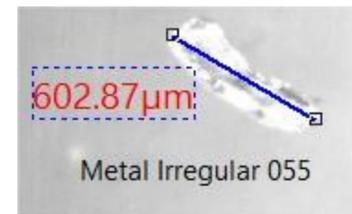
This paper information is based on different detectability studies performed, by Syrviatek Corp, on different pharmaceutical industries remediation plan of visual inspection processes.

OBJECTIVES

- What is the importance of visual inspection in Biosimilars? Ensure that container is free of defects that could lead to a sterility issue and that the drug product is free of visible particulate matter.
- Criticability on Regulatory Agencies - An Increase on FDA 483 letters and MHRA observations related to particulate matter suspended in solution is observed.
- Summarize the Importance of a Controlled Visual Inspection Technique .
- Demonstrate that the quality of the visual inspection process increase with good technique and inspectors certification.
- Demonstrate that best use of defect standards for challenging visual inspection process increase the detectability.

METHODS

- Visual Inspection Methodology – Controlled Technique after Remediation.
 - Robust Technique – All areas of the units were covered during the execution of visual inspection technique. The inspection should be done under suitable and controlled conditions of illumination and background.
 - Container closure integrity should be inspected using unit/container dimensions.
 - Methodology should be consistent between inspectors, following inspection steps for consider a controlled technique.
 - Boundaries (photoelectric sensors) with alarms should be in place to avoid inspecting out of the inspection booth or in the incorrect background. Timing alerts must be in place to comply with the minimum required timing of inspection.
 - Detectability Study must be perform to demonstrate detectability per particle size and shape.
 - AQL is the quality metric for visual inspection performance and product quality measures. Reject rate action limits should be established for each defect type as well as an overall batch reject rate which will trigger a formal documented, investigation
- Visual Inspection Inspector Certification
 - Robust procedure on Inspector certification is a must. Annual eye-sight check and meet 20/20 (with or without corrective lenses) with no color blindness.
 - Training workshop with real defects should be the technique used for the certification. Practice Examination must be documented. Proper defect kits must be used.
 - Steps for the Inspection Process must be challenged and validated.
- Defect Kit
 - Statistically Process Representative Certified Defect Kit. This is the most important part of the Visual Inspection in order to obtain a controlled visual inspection process.
 - Defect libraries must include examples of all appropriate defect types found "in-house" for all products using actual product.
 - Defect Library should have defined minimum and maximum % defects in the challenge set for inspector.
 - At least all defects based on PDA report No. 43 must be included in the defect kit.

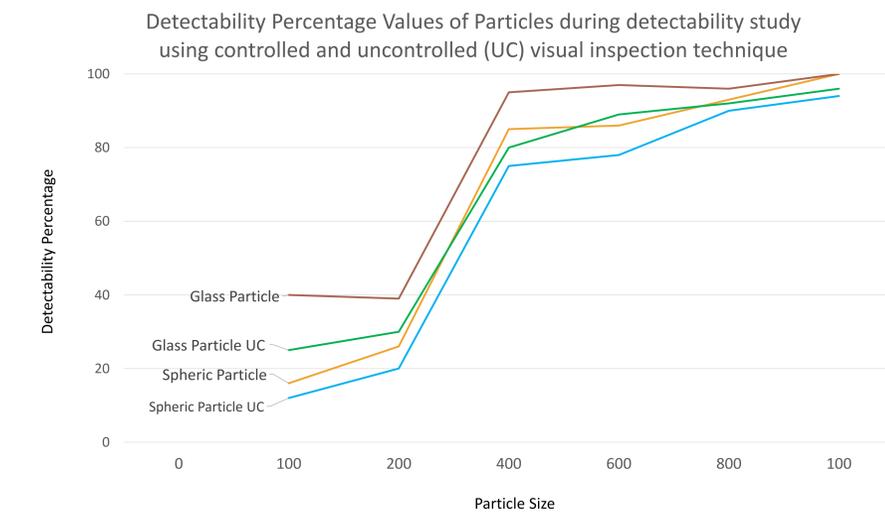
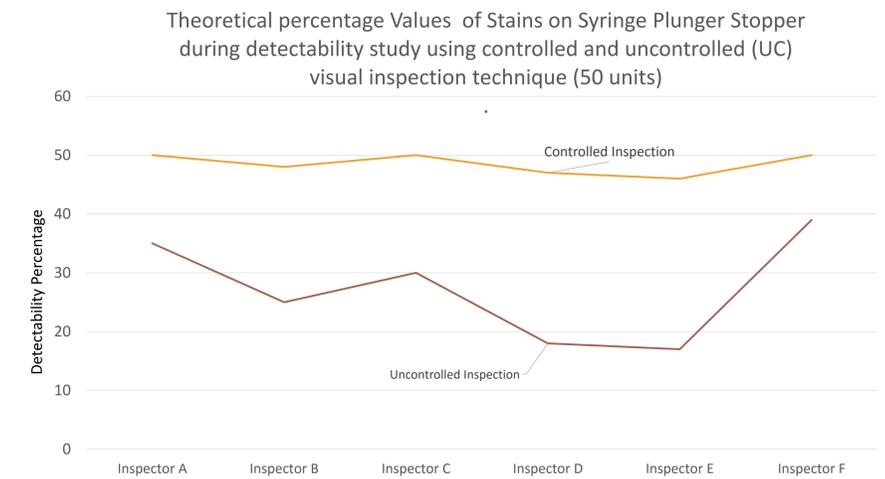


RESULTS

- The results of a controlled visual inspection process.
 - High Quality – Low Complaints
 - High detectability of filling problems and/or supplier defects.
 - Consistency on the Inspection Process.
 - Knowledge of the common problems with high detectability and deviations reduction



RESULTS OF DETECTABILITY



CONCLUSIONS

- Based on companies detectability studies performed previously the results summarized on this paper demonstrated the following:
 - Quality increase if a controlled technique is used for visual inspection
 - The quantity of complaints related to defects decrease proportionally with the increase in quality.
 - The output of the controlled visual inspection increase with more organized inspection techniques.
 - The detectability of defects increase if a good defect panel is used to certify the inspectors.
- Finally the visual inspection process must be organized and structured.
- Visual Inspection Defect Kits needs to be perfectly elaborated to comply with its intended use and increase detectability.



INSPECTION PROCESS IS THE HEART OF A BIOSIMILAR STERILE FACILITY