

AI- Powered **SOFT** GELATIN CAPSULE INSPECTION

Industry : FMCG, PHARMA

Summary: Gelatin capsule manufacturers face challenges in manufacturing like shape deformation, air bubbles, leaks, discoloration, and surface defects on the capsules, affecting product quality. Capsule manufacturers can now leverage the SwitchOn **DeepInspect®** system to detect surface defects with an impressive **99.95% accuracy**, ensuring superior product quality.



USE CASE

The Challenge

Surface defects in capsules can lead to product recalls, compromised quality, reduced shelf life etc. Often, manufacturers only become aware of these defects after producing **bulk quantities**.

Reduced Shelf Life

Defects like **leaks or improper sealing** in capsules can expose contents to moisture, air, and contaminants, significantly reducing product stability and overall shelf life.

Dosage Inconsistencies

Air bubbles inside capsules can cause dosage inconsistencies, reduce product stability, and lead to potential customer complaints, ultimately increasing rejection rates and production costs.

Ineffective Treatment

Defective capsules allow moisture to penetrate, **degrading the active ingredients**. This can reduce the medication's potency, leading to ineffective treatment for conditions.

Light & Camera Placement

The camera is positioned above the line, while lighting is placed beneath the transparent conveyor, enabling **clear detection** of surface defects.

Continuous Image Capturing






The system captures images every **200 millisecond**, continuously monitoring the capsules and performing real-time inspection.

The Solution

The capsules move in bulk along a slanted conveyor equipped with the **DeepInspect® system**, which easily identifies defects like air bubbles, **double capsules**, **satellites**, black spots, and **shape deformations** with **99.5%** accuracy and less than **0.5% false positives**. A buzzer triggers when defective capsules exceed a threshold, alerting operators to take immediate corrective action.

The Setup

The setup consists of the listed items with **DeepInspect** software at the heart.

-  DeepInspect Software
-  Industrial Controller with i5 and GPU
-  Industrial Machine Vision Lights
-  Industrial Camera
-  Mitsubishi PLC

The Impact

Following the **implementation** of DeepInspect, Gelatin capsule manufacturers can experience significant improvements in their operations.

01

Deepinspect can **seamlessly detect surface defects** like double capsules, satellites, black spots, and shape deformations with 99.5% accuracy.

02

Enables manufacturers to take **proactive measures**, preventing the production of defective capsules in bulk and ensuring quality.

03

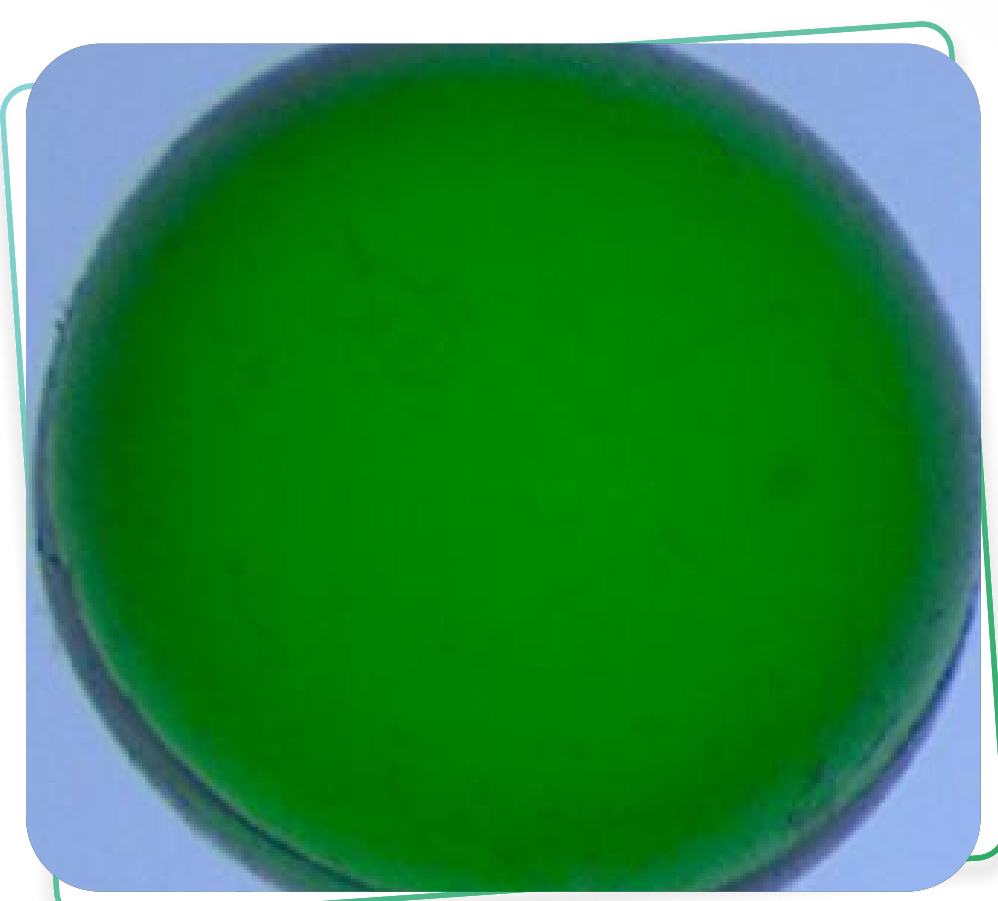
Enhances product safety and quality, ensures regulatory compliance, and improves customer satisfaction by **preventing faulty products**.

04

Prevents dosage inconsistencies caused by issues like air bubbles or leaks, ensuring accurate and safe medication delivery to consumers.

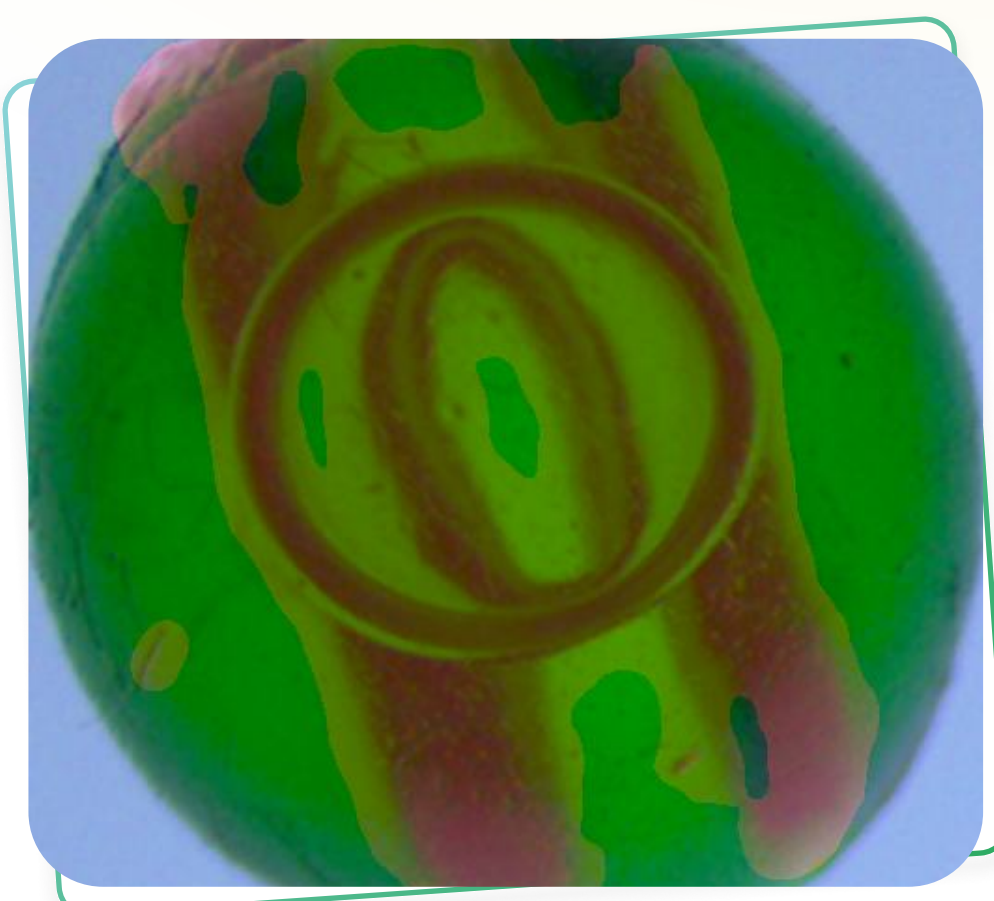
Conclusion

By implementing the SwitchOn DeepInspect system, gelatin capsule manufacturers can achieve 99.5% accuracy in detecting surface defects, while minimizing the false positive rate to just 0.5%. This significantly enhances inspection efficiency, improves product quality, and reduces production waste.



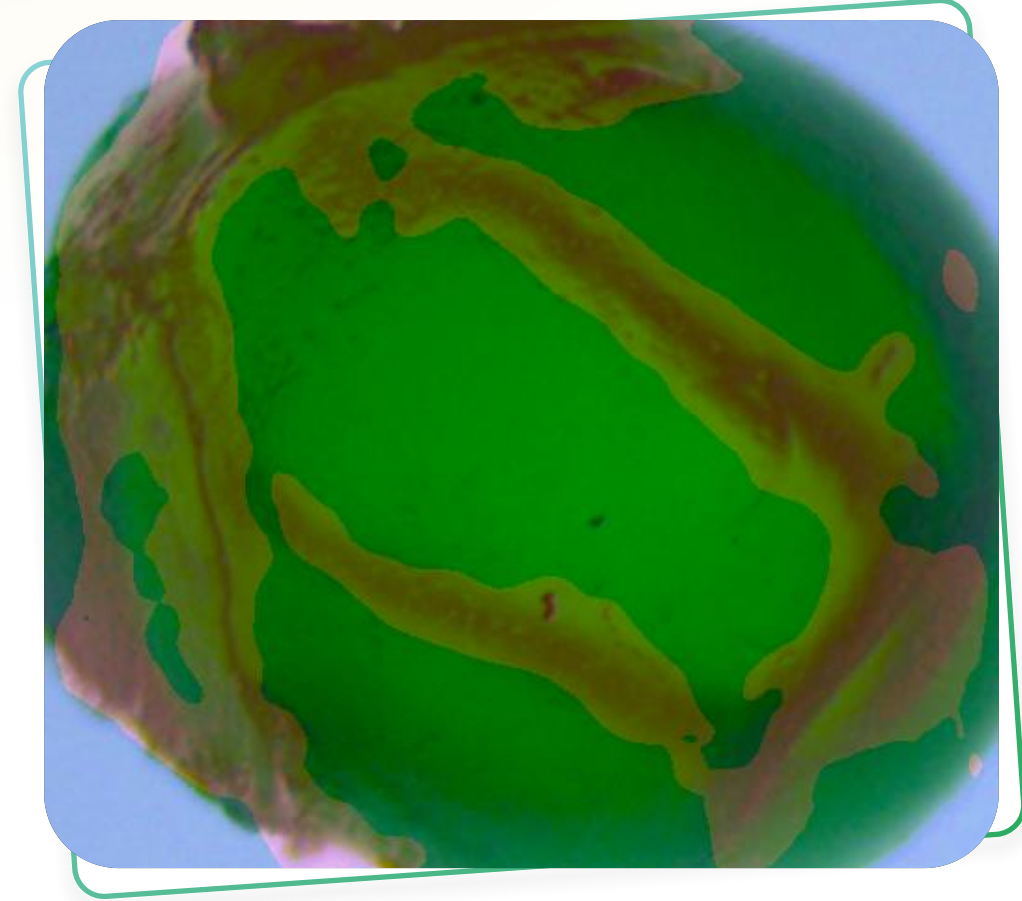
Tag: **Good**

Score : **100**



Tag: **Not Good**

Score : **64**



Tag: **Not Good**

Score : **40**

Reach out to us