SOP: In-line Quality Control and Defect Identification

This SOP details the procedures for **in-line quality control and defect identification** to ensure product consistency and minimize defects during the manufacturing process. It covers real-time inspection methods, defect detection criteria, corrective action protocols, operator responsibilities, and documentation requirements to maintain high-quality standards and improve overall production efficiency.

1. Purpose

To outline systematic steps for conducting in-line quality control and identifying defects in real time during manufacturing, ensuring continuous product quality and efficiency.

2. Scope

This SOP applies to all production and quality assurance personnel involved in the manufacturing line.

3. Definitions

- **In-line Quality Control:** Quality checks performed during the manufacturing process.
- **Defect:** Any non-conformance or irregularity that does not meet established quality standards.
- **Corrective Action:** Steps taken to eliminate detected non-conformances.

4. Responsibilities

- **Operators:** Perform visual inspections and report defects in real time.
- **Quality Inspectors:** Verify inspections, conduct audits, and confirm corrective actions.
- **Supervisors:** Oversee the process, ensure compliance, and initiate corrective measures when required.

5. Procedure

5.1 Set-Up

1. Ensure all inspection stations are clean and equipped with required tools (lights, measurement devices, checklists).
2. Verify all operators understand product specifications and defect acceptance criteria.

5.2 Real-Time Inspection

1. Operators inspect each item at designated checkpoints.
2. Visual and/or automated inspection methods should be used as specified for the product.
3. Any defect detected must be documented and isolated immediately.

5.3 Defect Criteria

Defect Type	Acceptance Criteria	Action Required
Surface Scratch	No scratch visible to naked eye from 30 cm distance	Reject/Repair
Dimension Out of Spec	Tolerance as per product drawing	Reject
Color Mismatch	Matches control sample	Reject

5.4 Corrective Action Protocol

1. Isolate defective product in a designated area.
2. Record defect type, batch number, time, and operator name in the QC log.
3. Notify the supervisor for assessment and disposition.
4. Implement corrective action (retrain operator, machine recalibration, etc.) as necessary.
5. Document all actions taken in the corrective action log.

5.5 Documentation

- All inspections and defects must be recorded on the Quality Control Checklist or electronic QC system.

- All corrective actions must be logged and reviewed in weekly quality meetings.

6. References

- Product specification sheets
- Quality control checklists
- Manufacturer's inspection guidelines

7. Revision History

Version	Date	Revision Details	Approved By
1.0	2024-06-09	Initial release	QA Manager