Product Specific Specification for Straight Cut Potato SKU (SC-9mm)

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1. Introduction

This document provides a comprehensive Product Specific Specification (PSS) for the straight cut potato SKU with a cut width of 9mm, designated as **SC-9mm**. The purpose of this specification is to define the quality thresholds, operational parameters, and quality control protocols based on the analysis of data collected over the past six months. This standard aims to ensure consistent product quality, optimize processing efficiency, and facilitate proactive maintenance and troubleshooting within the production environment.

2. Product Overview

The **SC-9mm** SKU represents a uniform, straight-cut potato segment with a standardized width of 9 millimeters. This product is primarily used in frozen fries and snack applications, requiring specific quality targets to meet consumer expectations and regulatory standards. The specifications outlined herein pertain specifically to the production processes associated with the PSS model *PSS-SC-9mm-21.8%DM*.

Description: The product maintains a dry matter content targeting 21.8%, with permissible variations of ±0.3 percentage points. It adheres to strict defect rate policies, fry color consistency, and performance thresholds for associated processing equipment.

3. Equipment Manual References

Operational manuals and maintenance documentation for key equipment used in the production of the SC-9mm SKU are integral to maintaining optimal performance. The following equipment references, as supported by the technical manuals, include rated throughput capacities, efficiency thresholds, and error codes.

Equipment	Model	Rated Throughput	Efficiency Threshold	Maintenance Frequency
Cutting Machine	CUT-2000	8.5 t/h	≥ 85%	Every 250 operational hours
Fryer	FRY-XL	6.0 t/h	≥ 88%	Monthly

Note: Equipment manuals include detailed troubleshooting steps, safety procedures, and calibration protocols necessary for optimizing performance and preventing defects.

4. Specification Details

The specifications for the SC-9mm SKU encompass key qualitative parameters critical for final product quality. These parameters include:

- **Dry Matter Content:** 21.8%, ±0.3% tolerance
- **Defect Rate:** Less than 2% of total batch — including defects such as bruises, discoloration, and foreign matter
- **Fry Color Range:** Light golden to medium golden, standardized on a color chart (FryColor-Range-01)
- **Downgrading Criteria:** Any batch exceeding defect rate thresholds or fry color deviations shall be subject to rework or downgrading procedures as delineated in section 6.

5. Quality Targets

Dry Matter Content

The dry matter of the raw potato should be maintained at a target of **21.8%** with a tolerance of **±0.3 percentage points**, ensuring optimal texture and frying quality.

Example: A batch with 21.5% dry matter is acceptable; however, 22.2% exceeds the upper tolerance and warrants review.

Defect Rate

Defect rates should stay below **2%** of the total processed units, including but not limited to:

- Bruising
- Discoloration
- Foreign material inclusion
- Surface damage

Fry Color Range

Fry color shall adhere to a standard specified as FryColor-Range-01, corresponding to a light golden hue. Deviations beyond this range are deemed unacceptable and trigger quality interventions.

6. Downgrading and Rework Protocols

Criteria for Downgrading

When a batch fails to meet the specified quality thresholds—either exceeding defect rates (>2%), or fry color outside acceptable range—the batch must be subjected to reprocessing or classification as lower grade.

Rework Procedures

1. Identify and segregate defective units during visual inspection.
2. Assess defect severity; minor surface blemishes may be suitable for re-cut or re-processing.
3. Adjust frying parameters if color deviations are noted due to oil temperature or frying time variations.
4. Re-evaluate dry matter content post-reprocessing; target remains at 21.8% ±0.3%.

Documentation and Record-Keeping

All downgrading or rework actions must be recorded in batch records with reasons, corrective actions, and operator signatures. The quality assurance team shall review and approve reprocessed batches for release.

7. Monitoring Data & Trends (Last 6 Months)

This section summarizes the key data collected over the previous six months, with emphasis on process consistency and quality metrics.

Dry Matter Content Trends

Month	Average Dry Matter (%)	Standard Deviation	Within Tolerance?

October 2023	21.75	0.15	Yes
November 2023	21.82	0.12	Yes
December 2023	21.68	0.14	Yes

Defect Rate Summary

The average defect rate has remained below 2%, with the highest observed at 1.8% in January 2024, indicating stable operation.

Fry Color Compliance

Color deviations are within acceptable parameters for 95% of batches, with occasional minor deviations corrected in real-time.

> **Note:** Continuous monitoring is essential for early detection of deviations and maintaining strict adherence to quality targets.

8. Common Error Codes & Troubleshooting

Error Code DOW-PI-4551: Feed Jam in Cutting Machine

Symptoms: Machine halts unexpectedly; feed stops.

Root Cause: Blockage due to foreign objects or excessive raw material moisture.

Resolution Steps:

1. Pause the machine and disconnect power.
2. Inspect the feed area for foreign material.
3. Clear obstructions and verify moisture levels are within specified range.

4. Reassemble and restart the machine, monitoring for proper operation.

Error Code DOW-FR-3489: Oil Temperature too Low

Symptoms: Fry color is darker than acceptable range.

Root Cause: Incorrect oil temperature setpoint or oil degradation.

Resolution Steps:

1. Check the oil temperature settings on the fryer control panel.
2. Verify sensor calibration and replace if faulty.
3. Adjust temperature to within specified range (e.g., 180°C–190°C).
4. Proceed with test batch for color verification.

Refer to equipment manual sections 7.2–7.4 for detailed troubleshooting procedures for each error code.

9. Maintenance and Troubleshooting Procedures

Routine Maintenance Schedule

- **Daily:** Clean feed hoppers, inspect blades, check oil levels in fryers.
- **Weekly:** Lubricate moving parts, calibrate temperature sensors, verify measurement devices.
- **Monthly:** Perform full safety inspection, replace worn parts, update firmware or software if applicable.

Preventive Maintenance for Critical Equipment

Ensure spare parts are stocked, and maintenance records are updated according to schedule. Use only manufacturer-approved components to avoid process deviations.

Troubleshooting Flowchart

```
      [Start] -> Is defect rate >2%? -> Yes ->
Investigate process parameters & equipment condition ->
Is equipment functioning normally? -> No -> Perform
troubleshooting as per error codes -> Reassess defect
rate -> If no, escalate for root cause analysis


      If defect rate ≤ 2%, continue monitoring.
```

10. Appendices

Glossary of Terms

- **Dry Matter Content:** The proportion of solid content in raw potato measured via dehydration method.
- **Fry Color Range:** Visual standard for acceptable fried color, rated on a scale (e.g., 1-5).
- **Defects:** Imperfections in potatoes such as bruising, discoloration, or foreign matter.

References

- Equipment manuals: CUT-2000 and FRY-XL series
- Quality control charts for dry matter and defect analysis (last 6 months)
- Food safety standards applicable to potato processing (e.g., HACCP guidelines)

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