Batch Wafer Quality Summary Report

Report Generated: 2025-12-27 12:43:34
Simulation Date: 2025-12-27
Report Type: Summary Only (Per-Wafer Details Excluded)

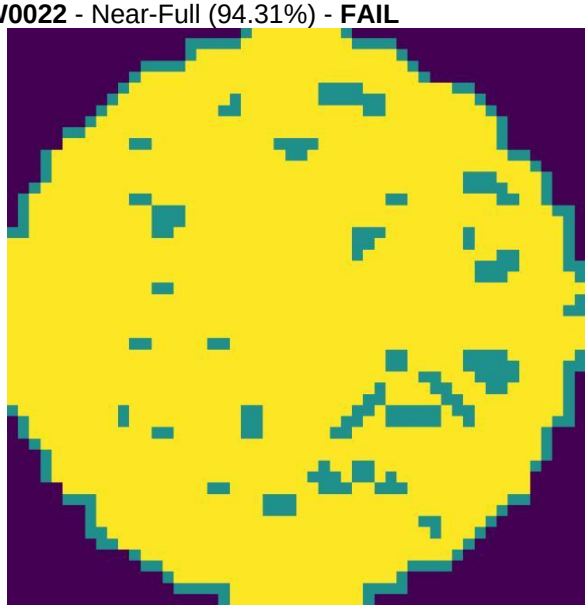
Batch Summary

Total wafers: 236
Date Range: 2025-12-27 (Single Day)
PASS: 164 | **FAIL:** 72
PASS rate: 69.49%

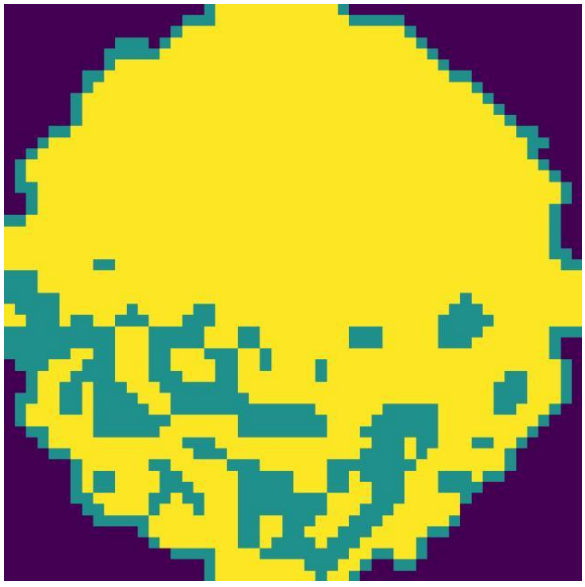
Sample Wafer Images

Showing representative samples: Top defects and good examples

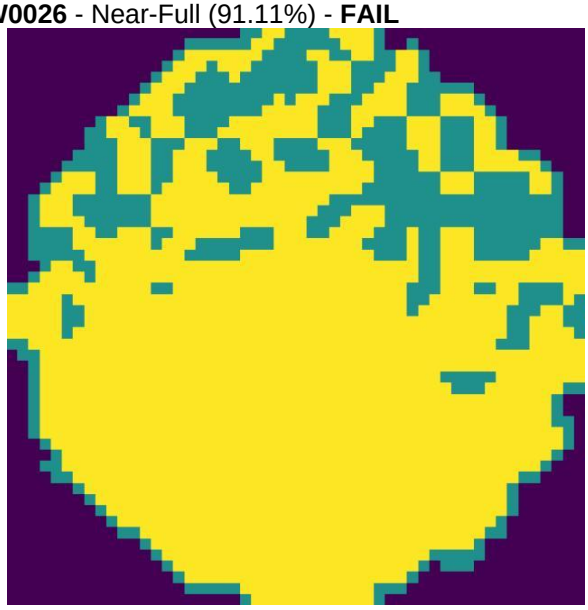
Thermal_THERM_01_W0022 - Near-Full (94.31%) - **FAIL**



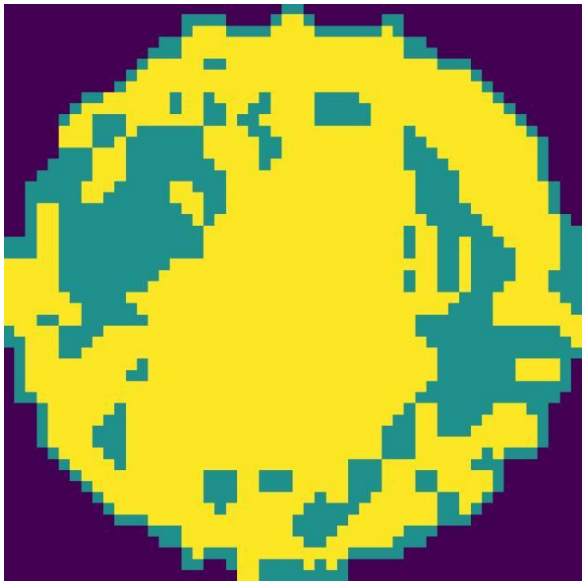
Thermal_THERM_02_W0003 - Near-Full (91.72%) - **FAIL**



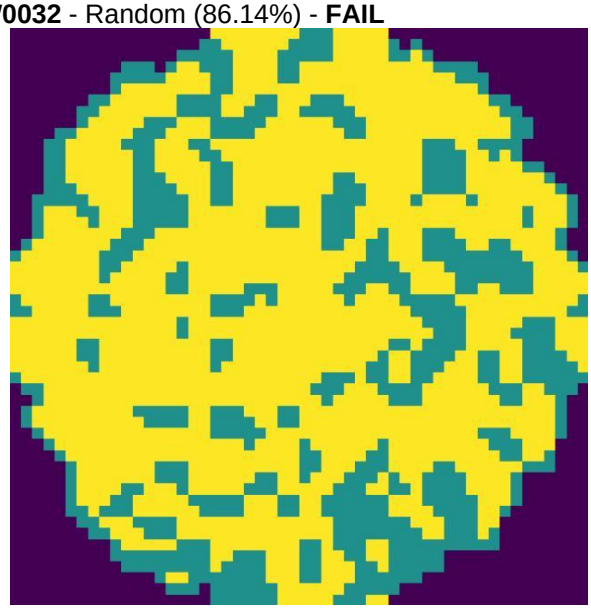
Thermal_THERM_02_W0026 - Near-Full (91.11%) - **FAIL**



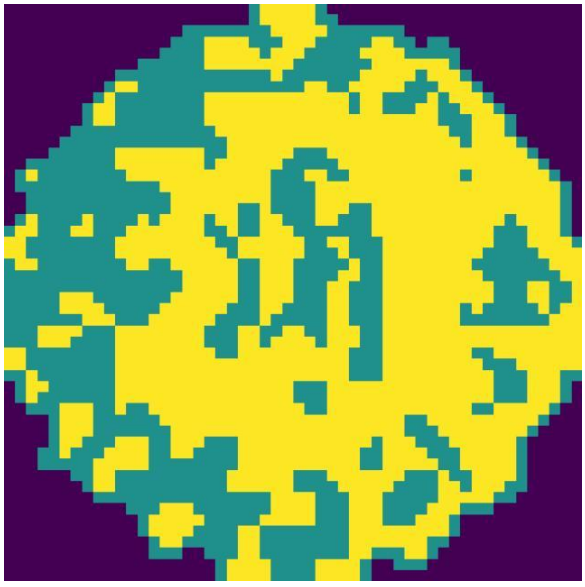
Mechanical_MECH_02_W0029 - Near-Full (89.73%) - **FAIL**



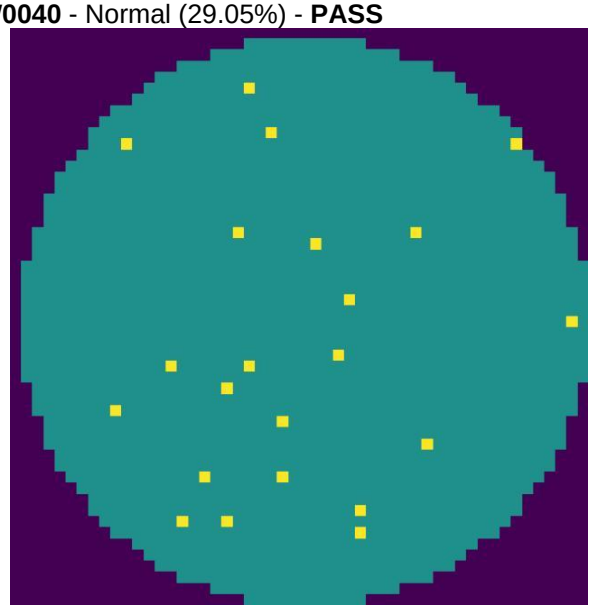
Electrical_ELEC_02_W0032 - Random (86.14%) - **FAIL**



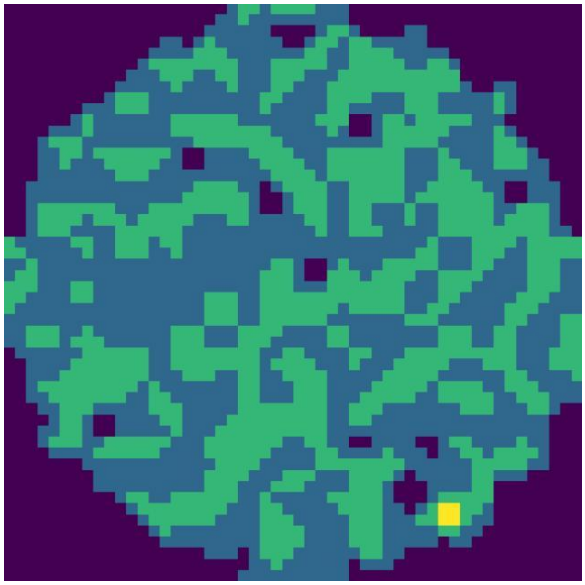
Thermal_THERM_01_W0016 - Random (84.62%) - **FAIL**



Electrical_ELEC_01_W0040 - Normal (29.05%) - **PASS**



Electrical_ELEC_02_W0009 - Random (0.36%) - **PASS**



Top 5 Highest Defect Percentages

• Thermal_THERM_01_W0022 (Thermal): 94.31% [Near-Full]
• Thermal_THERM_02_W0003 (Thermal): 91.72% [Near-Full]
• Thermal_THERM_02_W0026 (Thermal): 91.11% [Near-Full]
• Mechanical_MECH_02_W0029 (Mechanical): 89.73% [Near-Full]
• Electrical_ELEC_02_W0032 (Electrical): 86.14% [Random]

Distribution by Machine Type

• Electrical: 94 wafers
• Mechanical: 81 wafers
• Thermal: 61 wafers

Distribution by Defect Class

• Normal: 163 wafers
• Random: 13 wafers
• Donut: 13 wafers
• Edge-Ring: 12 wafers
• Edge-Loc: 10 wafers
• Local: 10 wafers
• Center: 6 wafers
• Scratch: 5 wafers
• Near-Full: 4 wafers

AI-Enhanced Engineering Summary

The batch yield is currently at 69.49%, with 72 wafers failing out of 236. The Thermal machine type shows a significant number of high-defect wafers, particularly with Near-Full defect classes dominating the worst cases. Mechanical and Electrical machines also contribute to failures but to a lesser extent. The presence of high defect percentages in Near-Full and Random defect classes indicates systemic issues affecting yield.

Estimated batch yield impact: High

Key Risks

• High incidence of Near-Full defects in Thermal machines
• Random defects impacting Electrical machine wafers
• Significant number of wafers failing across multiple machine types

Recommended Actions

• Perform detailed root cause analysis on Thermal process steps
• Review and optimize Electrical machine parameters to reduce random defects
• Implement targeted process controls to reduce Near-Full defect occurrence
• Increase monitoring and inspection frequency for high-risk machines