Batch Wafer Quality Summary Report

Report Generated: 2025-12-27 13:19:06
Simulation Date: All Dates
Report Type: Summary Only (Per-Wafer Details Excluded)

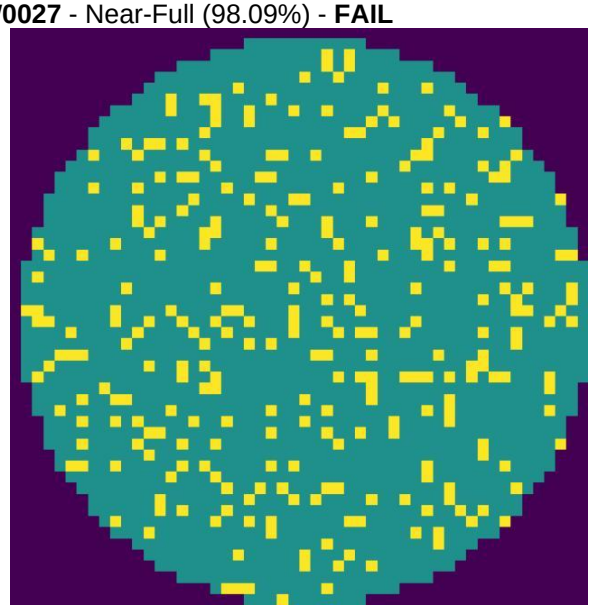
Batch Summary

Total wafers: 1236
Date Range: 2025-12-21 to 2025-12-27 (5 days)
PASS: 869 | **FAIL:** 367
PASS rate: 70.31%

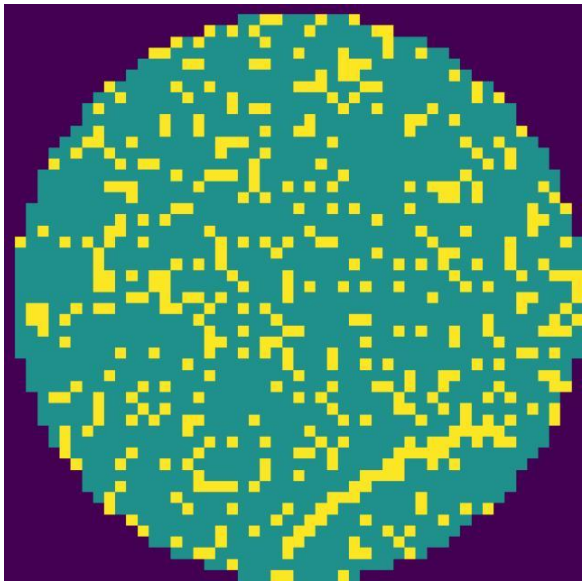
Sample Wafer Images

Showing representative samples: Top defects and good examples

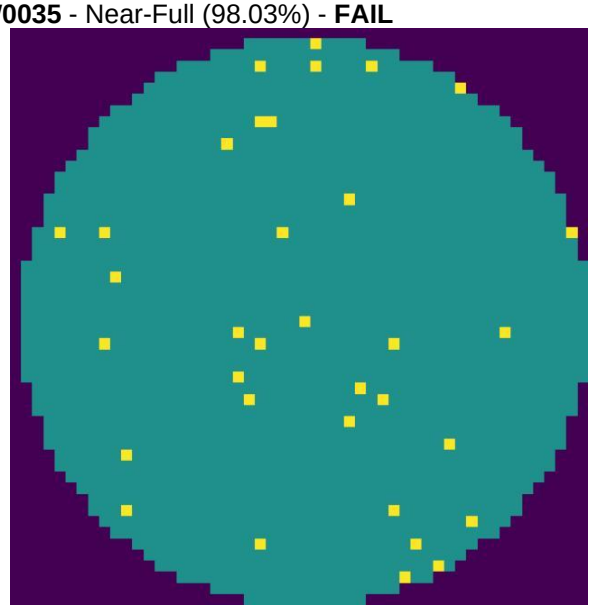
Electrical_ELEC_01_W0027 - Near-Full (98.09%) - **FAIL**



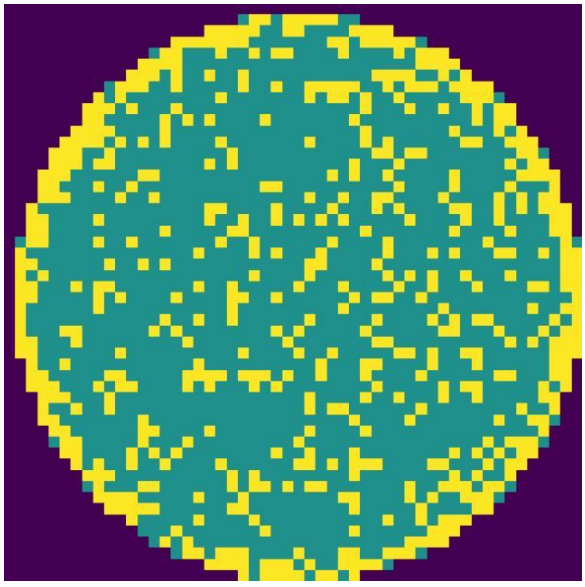
Electrical_ELEC_02_W0018 - Near-Full (98.04%) - **FAIL**



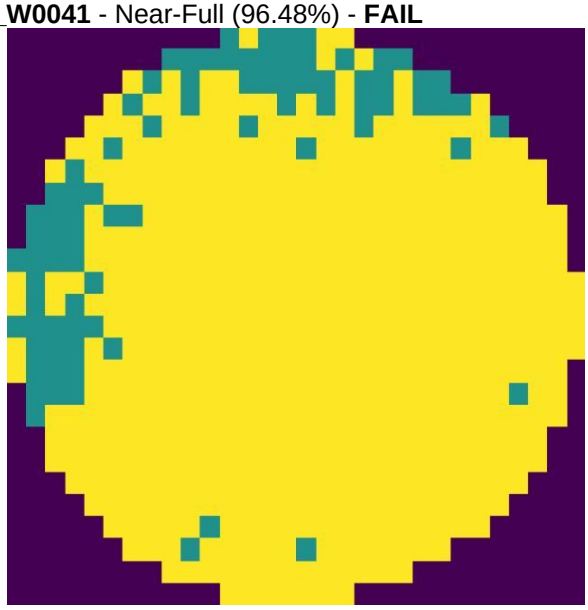
Electrical_ELEC_02_W0035 - Near-Full (98.03%) - **FAIL**



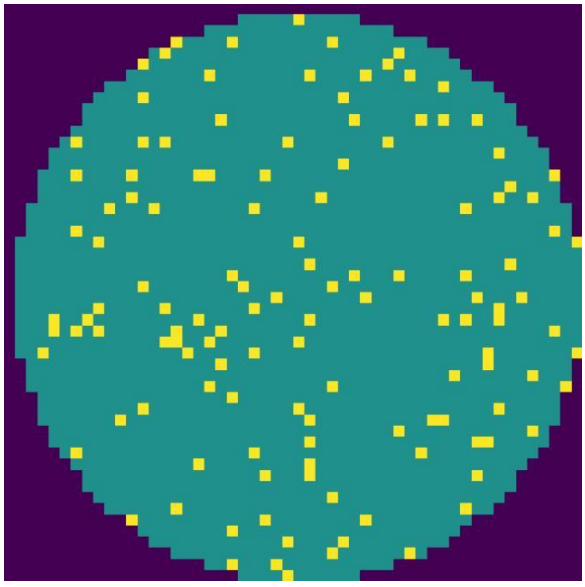
Electrical_ELEC_02_W0024 - Near-Full (97.46%) - **FAIL**



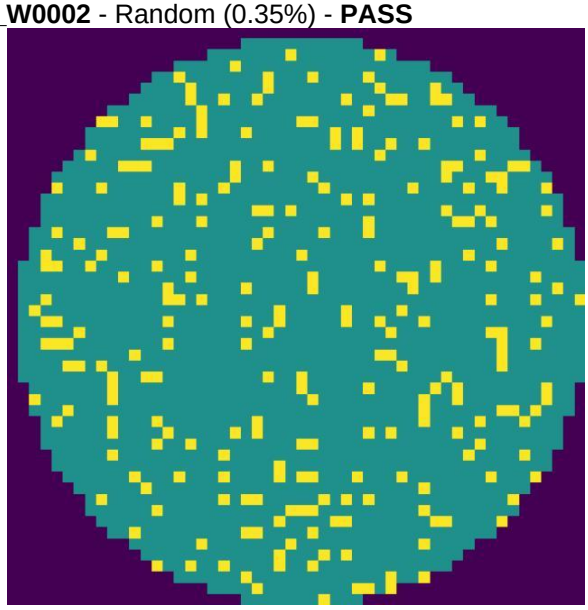
Mechanical_MECH_02_W0041 - Near-Full (96.48%) - **FAIL**



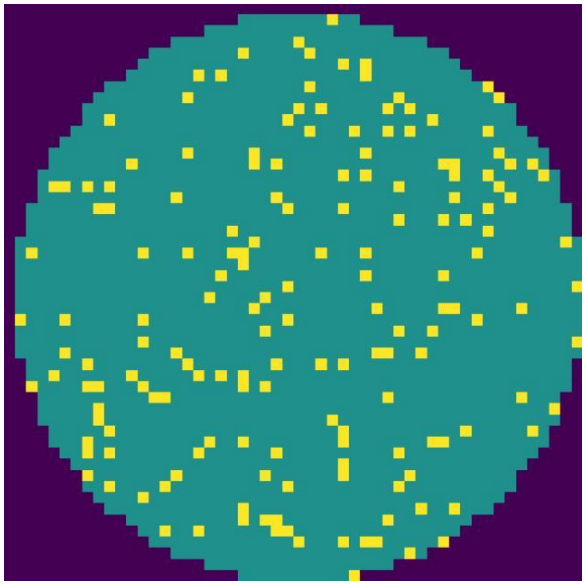
Mechanical_MECH_02_W0025 - Near-Full (95.99%) - **FAIL**



Mechanical_MECH_02_W0002 - Random (0.35%) - **PASS**



Thermal_THERM_01_W0003 - Random (0.14%) - **PASS**



Top 5 Highest Defect Percentages

• Electrical_ELEC_01_W0027 (Electrical): 98.09% [Near-Full]
• Electrical_ELEC_02_W0018 (Electrical): 98.04% [Near-Full]
• Electrical_ELEC_02_W0035 (Electrical): 98.03% [Near-Full]
• Electrical_ELEC_02_W0024 (Electrical): 97.46% [Near-Full]
• Mechanical_MECH_02_W0041 (Mechanical): 96.48% [Near-Full]

Distribution by Machine Type

• Electrical: 494 wafers
• Mechanical: 425 wafers
• Thermal: 317 wafers

Distribution by Defect Class

• Normal: 864 wafers
• Donut: 56 wafers
• Random: 52 wafers
• Edge-Ring: 50 wafers
• Edge-Loc: 50 wafers
• Local: 49 wafers
• Near-Full: 41 wafers
• Scratch: 41 wafers
• Center: 33 wafers

AI-Enhanced Engineering Summary

The batch yield is at 70.31%, with a total of 1236 wafers processed and 367 failures. The majority of defects are classified as Near-Full, predominantly occurring on Electrical machines, which account for 4 of the top 5 worst defect wafers. Mechanical machines also contributed to high defect rates but to a lesser extent. This indicates potential systemic issues in the Electrical processing steps affecting yield.

Estimated batch yield impact: High

Key Risks

• High Near-Full defect rate on Electrical machines
• Significant wafer failures reducing overall yield
• Potential process instability in Electrical and Mechanical machines

Recommended Actions

• Perform detailed root cause analysis on Electrical machine processes
• Review and optimize process parameters for Electrical and Mechanical equipment
• Increase monitoring and inline inspection for early defect detection
• Implement corrective actions targeting Near-Full defect reduction