## 📁 Filters

**Operator**

O125 ✕
O123 ✕
O124 ✕

**Tool**

T1 ✕    T3 ✕
T2 ✕

**MaterialLot**

Lot-C ✕
Lot-B ✕
Lot-A ✕

**Machine**

M3 ✕    M1 ✕
M2 ✕

☐ Show Only Actionable Causes

# 🔍 Smart Root Cause Ranking Dashboard with Notes & Actionability

Filtered dataset contains `10000` rows.

|   | Operator | Tool | MaterialLot | Machine | Pressure | Speed | Temperature | Defect |
|---|----------|------|-------------|---------|----------|-------|-------------|--------|
| 0 | O125 | T1 | Lot-C | M3 | 5.2369 | 113.6845 | 195.4159 | 0 |
| 1 | O123 | T3 | Lot-B | M1 | 4.9379 | 94.1912 | 197.3742 | 0 |
| 2 | O124 | T2 | Lot-A | M1 | 5.4082 | 84.7612 | 197.8598 | 0 |
| 3 | O124 | T2 | Lot-C | M2 | 4.6288 | 100.6753 | 192.8763 | 0 |
| 4 | O125 | T1 | Lot-C | M3 | 4.6999 | 109.4744 | 201.4552 | 0 |

## 📋 Model Performance

|   | precision | recall | f1-score | support |
|---|-----------|--------|----------|---------|
| 0 | 0.835 | 0.976 | 0.9 | 2073 |
| 1 | 0.364 | 0.066 | 0.111 | 427 |
| accuracy | 0.821 | 0.821 | 0.821 | 0.821 |
| macro avg | 0.599 | 0.521 | 0.506 | 2500 |
| weighted avg | 0.755 | 0.821 | 0.766 | 2500 |

## 📊 Ranked Root Cause Contributors

| | Feature | Importance Score | Notes | Actionable |
|---|---|---|---|---|
| 0 | Pressure | 0.2848 | Adjustable process parameter | Yes |
| 1 | Speed | 0.2837 | Adjustable process parameter | Yes |
| 2 | Temperature | 0.2837 | Check for consistency in heating/cooling | Yes |
| 3 | Operator: O124 | 0.0362 | Frequently appears in failed batches | Yes |
| 4 | MaterialLot: Lot-B | 0.0182 | May indicate supplier/batch issue | Yes |
| 5 | Machine: M2 | 0.0182 | May require calibration | Yes |
| 6 | Tool: T2 | 0.0175 | Might need maintenance or replacement | Yes |
| 7 | Machine: M3 | 0.0173 | May require calibration | Yes |
| 8 | Tool: T3 | 0.0145 | Might need maintenance or replacement | Yes |
| 9 | MaterialLot: Lot-C | 0.0131 | May indicate supplier/batch issue | Yes |