

PREDICTIVE ANALYTICS IN MANUFACTURING



OBJECTIVE

Identification of optimal parameters to reduce shot counter rejects of a molding machine

OUTCOME

REDUCE PRODUCTION TIME
REDUCE MANUFACTURING WASTE

STUDY GROUP:

Number of records of data: 5000
Molding Machine : 500 B

PARAMETERS USED

- Shot counter rejects production
- Shot counter actual value
- Torque Mean value
- Flow Number
- Stand Still time prior to cycle start
- cycle time until de molding
- Rejects cause
- Injection Time actual time
- Plasticizing actual time
- Injection Force
- Material cushion smallest value
- Material cushion after holding pressure
- Shot Volume actual value
- Switch over Volume
- Material Cushion end holding pressure
- Specific Injection Pressure peak value
- Flow Number
- Clamping force Peak Value
- Clamping force stored

FINDINGS

	PARAMETER	OPTIMAL VALUE
1	MATERIAL CUSHION END HOLDING PRESURE	> 57.65
2	MATERIAL CUSHION SMALLEST VALUE	<= 79.63
3	MATERIAL CUSHION AFTER HOLDING PRESSURE	> =59.07
4	INJECTION TIME ACTUAL VALUE	>= 4.94

TOP PARAMETERS

- Clamping Force stored
- Torque Mean value current cycle
- Material Cushion smallest value
- Specific injection pressure peak value
- Material cushion after holding pressure

Algorithm Findings

- 98% Accuracy that material cushion end holding pressure > 57.65
- 70% accuracy with the model

Total Algorithms Used: 26

- Stacking algorithms
- Boosting Algorithms
- Predictive Algorithms
- Clustering Algorithms
- Feature selection Algorithms



REFERENCES

Case study Available upon request.