ACA CONFERENCE SEPT. 2020

MACHINERY MAINTENANCE

INTRODUCTION

NAME: BALAKISHAN VEERAMALLA

DESIGNATION: MAINTENANCE MANAGER

ORGANIZATION: HUXLEY INDUSTRY LIMITED

PRE-REQUISITES OF MAINYTENANCE

- ✓ MAINTENANCE TEAM AND TRANING
- ✓ MANAGEMENT COMMITMENT
- ✓ AVAILABILITY OF SPARE PARTS
- ✓ MAINTENANCE SCHEDULES/ PLAN
- ✓ FOLLOW UP ON OUTPUT PERFROMNACE

PROCESSING STAGES

1. CLEANING & CALIBRATION
2. STEAMING
3. SHELLING
4. DRYING OVENS & HUMIDIFICATION
5. MACHINE PEELING
6. GRADING MACHINES
7. PASTEURIZATION MACHINES
8. PACKING MACHINES
9. UTILITIES
10. ELECTRICALS

CLEANING AND CALIBRATION

- ✓ Uniform flow of material in Drum
- ✓ Drum holes clearance
- ✓ Maintenance of input and output elevators
- ✓ Clean, Lubricate, Inspect & Tighten-CLIT and Preventive Maintenance-PM for calibrators
- ✓ Collecting of material
- ✓ VFD Controls for I/P material
- ✓ Pre-Cleaner checklist
- ✓ Safety precautions

STEAMING

- ✓ Maintaining of Steam flow at cookers
- ✓ Condition of PRS
- ✓ Cooker pot temperature gauges
- ✓ Steam lines leakages
- ✓ Steam traps & Moisture separators
- ✓ Steam lines insulation
- ✓ Steam consumption (KG/HR)
- ✓ Proper cooking
- ✓ Proper material movement
- ✓ Safety precautions

SHELLING

- ✓ Machine capacity
- ✓ Shelling line design (Material flow)
- ✓ Cutting machine process
- ✓ Adjustment of cutters
- ✓ Durability of Blades and splitters
- ✓ Skilled operators
- ✓ Proper calibrated Cashew
- ✓ Preventive Maintenance & CLIT
- ✓ OUTPUTS collection & control on outputs
- ✓ Separation of Outputs
- ✓ Regular consumables
- ✓ Reduction of Manpower (WPB)
- ✓ Power consumption
- ✓ Hygiene floor & Tool box trainings
- ✓ Safety precautions

SHELLING MACHINE CAPACITY

Cutting machinery capacity as per availability of machines at HUXLEY-NIGERIA

S.NO	Outputs	No of Lines	Nut count	No of machines per line	Machine strokes per hour	Machine capacity per Hour(As per NC)	Line capacity per hour	Idle strokes (10%)	Line capacity per Hour (without idle strokes) kg	Uncut (25%)	Line capacity per hour (without uncut) kg	Capacity per shift (10 hours) kg	Capacity per shift (18 hours) kg
1	A1	1	148	5	24480	165.41	827.03	82.70	744.32	186.08	558.24	5582.43	10048.38
2	A2	1	170	5	24480	144.00	720.00	72.00	648.00	162.00	486.00	4860.00	8748.00
3	B1	1	191	5	24480	128.17	640.84	64.08	576.75	144.19	432.57	4325.65	7786.18
4	B2	1	219	5	24480	111.78	558.90	55.89	503.01	125.75	377.26	3772.60	6790.68
5	C1	1	247	5	24480	99.11	495.55	49.55	445.99	111.50	334.49	3344.94	6020.89
7	C2	1	275	5	24480	89.02	445.09	44.51	400.58	100.15	300.44	3004.36	5407.85
8	D	1	340	4	24480	72.00	288.00	28.80	259.20	64.80	194.40	1944.00	3499.20
					TOTAL	809.48	3975.41	397.54	3577.87	894.47	2683.40	26833.99	48301.19

Shelling Machine CLIT & PM structure

HUXLEY INDUSTRIES LIMITED					
Shelling Machine CLIT Report					
SHELLING MACHINE NUMBER				Date	
S.No	LINE		MACHINE		Remarks
1	Brushes				
2	Feeding bars				
3	Catching cups				
4	Rails				
5	Direction Bars				
6	Finger Bars				
7	Pusher Bars				
8	Movable Jaws				
9	Machine Total Bearings				
10	BLADE				
11	SPLITTER				
	CHECKED BY	VERIFIED BY		AUTHORISED BY	

HUXLEY INDUSTRIES LIMITED						
Shelling Machine Preventive Maintenance Report						
SHELLING LINE NUMBER					Date	
S.No	MACHINE	M/C-01	M/C-02	M/C-03	M/C-04	Remarks
1	Brushes					
2	Feeding bars					
3	Catching cups					
4	Rails					
5	Direction Bars					
6	Finger Bars					
7	Pusher Bars					
8	Movable Jaws					
9	Machine Total Bearings					
10	Siever-01 Belt					
11	Siever-01 bearing					
12	Siever-02 Belt					
13	Siever-02 bearing					
14	All classifiers					
15	Conveyor belts					
16	Bucket elevator					
17	Input Pipelines					
18	Super alibrator					
19	Shooting Box					
20	Blowers					
CHECKED BY		VERIFIED BY			AUTHORISED BY	

DRYING OVENS AND HUMIDIFICATION

- ✓ Steam connections & PRS
- ✓ Temperature controllers & Indicators
- ✓ Solenoid Valves
- ✓ Motor condition & alignment
- ✓ Temperature tolerance
- ✓ Humidification time
- ✓ Moisture
- ✓ STEAM or COOLING chambers
- ✓ Material movement
- ✓ Safety precautions

MACHINE PEELING

- ✓ Moisture content
- ✓ Peeling machine (spring type or Batch type)
- ✓ Drum and spring shaft condition
- ✓ Air peeler condition
- ✓ Air pressure
- ✓ Calibrator for kernel
- ✓ Availability of spares
- ✓ Preventive maintenance
- ✓ Drum and shaft speed alignment
- ✓ Husk winnowing
- ✓ Skilled machine operator

GRADING MACHINES

- ✓ COLOR SORTERS(Grading and Sorting)
- ✓ Manual grading
- ✓ Nanopix machinery
- ✓ Mechanical grading (ROLLERS)
- ✓ Daily Monitoring
- ✓ Weekly CLIT
- ✓ Hygiene maintenance for floor and machinery
- ✓ Safety precautions

PASTEURIZATION MACHINE

- ✓ Infra red curing machine (pasteurization machinery)
- ✓ High, Medium and low infra lights Inspection
- ✓ Zone wise temperature calibration
- ✓ Temperature controllers inspection
- ✓ Cleaning of machinery (vacuum cleaning)
- ✓ Ultraviolet lights inspection
- ✓ Checklist for belts & elevators
- ✓ Zone temperature tolerances

PACKING SECTION

- ✓ Hygiene station maintenance
- ✓ Machinery cleaning checklist
- ✓ Metal detector
- ✓ Vacuum packing machinery inspection
- ✓ Compressor drain schedule
- ✓ Gas station (CO2)
- ✓ Room temperature maintenance
- ✓ Safety and hygiene precautions

UTILITY

- ✓ Compressors
- ✓ Boiler
- ✓ ETP & STP
- ✓ Toilets
- ✓ Workshops
- ✓ Engineering store
- ✓ Forklifts
- ✓ Material movement bins and trucks

ELECTRICAL & MECHANICAL

- ✓ Total machinery Load list
- ✓ Power consumption
- ✓ Electrical hazards
- ✓ TPM (Total Productive Maintenance)
- ✓ Breakdown analysis
- ✓ Generators maintenance and service
- ✓ MTTR (Mean Time To Repair)
- ✓ Safety training for Electricians and mechanics
- ✓ STEAM & AIR consumptions (M3/M)
- ✓ Safety precautions

Q & A

Thank You