## Factory Machine Maintenance and Safety Protocol

**Equipment covered in the pad production factory:**

* Fluffy Absorbent Core Making Machine
* Layers Assembly Machine
* Paper Shredder Machine
* UV Light Chamber

**Fluffy Absorbent Core Making Machine – Maintenance Overview**

**Key Components Requiring Regular Maintenance:**

* Air Compressor
* Pneumatic Cylinder
* PU Air Pipe Connections
* Cutting System
* Leakage Control Rubber Components
* Suction Waste Holding System
* Nut, Bolt, Pulley, and Belt Drive Assembly

**1.1 Air Compressor Maintenance Schedule**

|  |  |
| --- | --- |
| Frequency | Task |
| Daily | Drain tank moisture, check oil level (if applicable), inspect for leaks or abnormal sounds. |
| Weekly | Clean air filter, test safety valve, inspect belt condition. |
| Monthly | Inspect oil quality, tighten bolts, clean intake vents. |
| Every 3 Months / 500 hrs | Change oil, replace clogged filters, clean cooler (if applicable). |
| Annually | Inspect tank interior, replace worn components, test electrical system and motor. |

**1.2 PU Air Pipe Connection Maintenance**

|  |  |
| --- | --- |
| Frequency | Task |
| Weekly | Inspect for cracks, leaks, wear, and loose fittings. Replace as needed. |
| Monthly | Conduct leak test, clean pipes, check for stress points or deformation. |
| Every 6 Months | Replace old PU pipes and check all fittings. |
| Annually | Perform a complete system inspection and log all replacements. |

**1.3 Pneumatic Cylinder Maintenance**

|  |  |
| --- | --- |
| Frequency | Task |
| Daily | Check for air leaks and irregular operation noises. |
| Weekly | Inspect piston rod for damage, rust, and apply lubrication. |
| Monthly | Check mounting bolts, seals, and pneumatic connections. |
| Annually | Overhaul cylinder, replace seals, and inspect internal wear. |

**1.4 General Machine Maintenance (Weekly)**

* Tighten all nuts, bolts, and fasteners to prevent loosening from vibration.
* Check belts and chains for proper tension and signs of wear.
* Verify alignment of shafts, motor couplings, and pulleys.
* Inspect for abnormal vibrations or sounds using diagnostic tools if needed.
* Lubricate all moving parts, including bearings, motors, and gearboxes.
* Disinfect conveyor belts and clean pulverizer ducts weekly with bacteria-killing chemicals.

**2. Layers Assembly Machine – Maintenance Schedule**

**2.1 Fluffy Absorbent Core Feeding Conveyor**

* Sanitize the conveyor belt before starting each production session.
* Ensure belt alignment and smooth movement.
* Check the transition plate alignment between the conveyor and the sealing mechanism.
* Clean and align the sensor located above the conveyor.

**2.2 Layer Sealing Roller Mechanism**

* Sanitize all rollers before each production shift.
* Apply grease monthly to meshing gears and bearings.
* Clear accumulated banana fiber fluff using compressed air.
* Inspect key locks, gear teeth, chains, and sprockets for proper tension.
* Verify alignment and positioning of the roller-mounted sensor.

**2.3 UV Light Chamber Maintenance**

* Inspect all UV lamps to ensure full functionality.
* Clean reflective surfaces and remove dust or residue buildup.
* Replace UV-C lamps when intensity drops below 70–80% of the rated output.

**3. Paper Shredder Machine Maintenance**

* Remove dust, debris, and fiber particles from entry feed, cutter, and bin using a vacuum or brush.
* Inspect and tighten belts.
* Lubricate gears and accessible bearings as needed.

**4. Safety Protocols**

**4.1 General Safety Measures**

* Always wear PPE: gloves, goggles, dust masks, ear protection, and non-slip shoes.
* Do not wear loose clothing, jewelry, or keep hair untied near machines.
* Only trained personnel should operate or troubleshoot control systems.
* Always let machines come to a full stop before clearing jams or performing maintenance.
* Inspect belt/chain alignment and tension daily.

**4.2 Pneumatic and Air Systems Safety**

* Confirm operating pressure levels before activating equipment.
* Never direct compressed air toward the body.
* Avoid sudden air discharge near skin or eyes.
* Inspect PU pipes and pneumatic cylinders before and after use.

**4.3 Cleanliness & Hygiene Protocol**

* Disinfect conveyor belts, rollers, and UV chambers regularly use food-safe or antimicrobial solutions.
* Remove fiber dust from shredder units, ducts, and surfaces to prevent fire or respiratory issues.
* Keep production areas dry and uncluttered to reduce slip and fall risks.

**4.4 Fire & Thermal Safety**

* Keep banana fiber and flammable materials away from motors and heat sources.
* Ensure fire extinguishers are accessible and tested regularly.
* Shut down machinery immediately if overheating, burning smells, or smoke is observed.