Reviewed date: 08-09-2020

| **Sr. #** | **Department /Area** | **Activity / Process** | **Identified Hazard** | **Impact** | **Condition**  **(R/NR)** | **Risk Assessment** | | | | **Possible Control Measures** | **Applied Controls** | **Residual Risk** | | | | | | **Residual Significance** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occurrence **(O)** | Severity **(S)** | Risk **(R)** = **(O\*S)** | **Significance** | Occurrence **(O)** | | Severity **(S)** | | Risk **(R)** = **(O\*S)** | |
| 1 | Extrusion Lines | Weighing | Overpowering,lack of safe techniques whilelifting heavy items/Bending down | [Musculoskeletal disorders (MSDs)](http://www.bls.gov/iif/oshdef.htm) | R | 3 | 2 | **6** | ***Low*** | Train the workers about lifting weight safely, follow the safe weight lifting limit (25 kg) | Weight lifting limit applied is 25 kg while training through safety signs provided. | 2 | | 2 | | **4** | | ***low*** |
| Chemical dust & direct contact with chemicals | Suffocation, Lungs disease, Irritation in throat & nose, skin irritation | R | 5 | 3 | **15** | ***High*** | Keep containers closed at all times.  Wear appropriate PPEs (gloves, mask, goggles, clothing and shoes) | PPEs provided | 5 | | 1 | | **5** | | ***low*** |
| Mixing | Chemical dust (During feeding and cleaning) ,  Insufficient air ventilation,  Direct contact with chemicals | Lung diseases  Suffocation  skin irritation | R | 5 | 3 | **15** | ***High*** | Cover the mixer opening with PVC flaps.  Wear appropriate PPEs like gloves, masks, clothing, goggles.  Install sufficient air ventilation system. | PPEs provided.  Electric fan is installed in mixer rooms. | 5 | | 1 | | **5** | | ***low*** |
| improper closing of lid , Improper handling of machine.  improper handling of pneumatic air. | Minor & major injuries | R | 2 | 3 | **6** | ***low*** | Train the workers to operate safely, Display warning signs that says “Keep a distance of 3 feet minimum” & "Do not open lid when mixer is operating"  Display work instructions and precautions | Trained the workers, PPEs provided | 1 | | 3 | | **3** | | ***low*** |
| Overpowering,lack of safe techniques whilelifting heavy items/Bending down | [Musculoskeletal disorders (MSDs)](http://www.bls.gov/iif/oshdef.htm) | R | 3 | 2 | **6** | ***low*** | Train the workers about lifting weight safely , follow the safe weight lifting limit (25 kg) | Weight lifting limit applied as 25 kg | 2 | | 1 | | **2** | | ***low*** |
| High noise of mixing unit | Hearing loss | R | 5 | 3 | **15** | ***High*** | Use ear plugs | Ear Plug provided | 5 | | 1 | | **5** | | ***low*** |
| Hopper | Exposure to Chemical dust , direct contact with chemicals | Asthma  Lung disease,  Skin irritation | R | 3 | 3 | **9** | ***Medium*** | Use PPEs,  Awareness on the usage of PPEs. | PPEs provided | 3 | | 2 | | **6** | | ***Low*** |
| Improper standing position while feeding hopper can  Result Fall | Minor injuries | R | 3 | 3 | **9** | ***Medium*** | Stand must be installed properly.  Proper feeding tools to be used. | Stands on most of feeding point are installed | 1 | | 3 | | **3** | | ***Low*** |
| Extruder | Skin touch to Heater that running at more than 250 ­oC | Burn | R | 2 | 2 | **4** | ***Low*** | Keep a minimum 2 feet distance from the heater.  Nobody other than operator goes near heater until asked.  Must wear protective clothing and gloves. | PPEs provided | 1 | | 1 | | **1** | | ***Low*** |
| Manually putting Strand on Roller  Hot Strand | Scalding injuries | R | 2 | 3 | **6** | ***Low*** | Wear protective gloves while putting pelletizer on conveyer. | Provided gloves | 1 | | 1 | | **1** | | ***Low*** |
|  | R | 2 | 1 | **2** | ***low*** | Wear appropriate PPEs.  Display “Do not touch” warning signs. | Provided gloves | 1 | | 1 | | **1** | | ***low*** |
| manual scraping of master batch or vibrator | Bruises | R | 2 | 2 | **4** | ***low*** | Do not bend down.  Wear gloves and  Wear PPEs. Provide heat resistive gloves and clothing. | PPEs provided | 1 | | 1 | | **1** | | ***low*** |
| Uncovered and Randomly placed electric wires near to water spillage | Electric shock & fall injury | R | 3 | 4 | **12** | ***Medium*** | properly place the wires and cover it . avoid water spillage , wear Safety shoes | Wires are properly covered and placed. Fixed the water leakage, Safety shoes provided | 0 | | 0 | | **0** | | ***low*** |
| Fumes emission from pots | Divers lung diseases | R | 2 | 4 | **4** | ***Medium*** | Install a system to suck these fumes to exhaust out from working place, use special masks | PPEs provided, fumes suction system installed on some extruders | 1 | | 4 | | **4** | | ***low*** |
| Packing | Chemical exposure | Asthma  Lung diseases | R | 2 | 4 | **8** | ***Medium*** | Provide appropriate PPEs and ensure compliance. | PPEs provided | 1 | | 4 | | **4** | | ***low*** |
|  |
| During handling of hot master batch from dryer | Burn Injuries | R | 1 | 2 | **2** | ***low*** | Provide appropriate PPEs and ensure compliance. | PPEs provided | 1 | | 1 | | **1** | | ***low*** |
| Storing | Lifter handling | Injuries | R | 2 | 3 | **6** | ***low*** | Train how to operate lifter safely. Use trolleys. Make clear pathways. Wear safety shoes follow the safe weight lifting limit (25 kg) | Weight lifting limit applied as 25 kg, safety shoe provided | 1 | | 1 | | **1** | | ***low*** |
| Overpowering,lack of safe techniques whilelifting heavy items/Bending down | [Musculoskeletal disorders (MSDs)](http://www.bls.gov/iif/oshdef.htm) |
|  | Air Compressor | Due to improper working of pressure safety valves it can burst | Multiple Casualties | R | 1 | 4 | **4** |  | Define safe distance from the compressor.  Display safety signs.  Calibrate the pressure gauge on the compressor.  Keep monitoring the pressure. | Trained workers to operate safely.  Pressure gauge is calibrated. | 1 | | 4 | | **4** | | ***low*** |
| 2 | Overall Halls | Control Panel | Improper wiring and plugging | Electric shock | R | 3 | 4 | **12** | ***Medium*** | All equipment must be grounded be putting in operation.  Explosion proofs motors and switches to be installed on each unit.  Wires must be properly contained through the use of ducts, conduits, cable ties and any other means that are required to manage loose wiring properly.  Use safety shoes | All equipment are grounded, wires are clamped and properly placed.  Safety shoes provided. | 2 | | 1 | | **2** | | ***low*** |
| Handling Operations | Powder dust  Chemical exposure | Asthma | R | 2 | 4 | **8** | ***Medium*** | Use trolleys to carry heavy weight.  Wear PPEs.  Do not bend down to lift the weight.  Display work instructions at each extrusion line.  Display warning signs. | PPEs provided | 1 | | 4 | | **4** | | ***low*** |
| Over powering  Improper usage of trolleys | Major Injuries | R | 2 | 3 | **6** | ***low*** | Weight lifting limit applied as 25 kg, safety shoe provided | 1 | | 2 | | **2** | | ***low*** |
|  | Over all halls | Loud noise of all machines | Hearing Loss | R | 5 | 2 | **10** | ***Medium*** | Use ear plugs | Ear plugs provided | 3 | | 1 | | **3** | | ***low*** |
| 3 | Lab | MFI Testing | Improper handling of lengths of polymer resin | Burning of skin | R | 2 | 2 | **4** | ***low*** | Train the workers Use PPEs,.install Proper ventilation system  Display work instructions.  Train and encourage staff to use PPEs.  Ensure compliance. | PPEs provided, | 1 | | 0 | | **0** | | ***low*** |
| Improper exhaust system and improper disposal of waste | Suffocation | R | 2 | 2 | **4** | ***Low*** | Ventilation system installed, | 1 | | 0 | | **0** | | ***low*** |
| Improper handling | Injury (Foot Injury) | R | 1 | 3 | **3** | ***Low*** | PPEs provided | 1 | | 0 | | **0** | | ***low*** |
| Moisture Meter | Hot unit | Bruises | R | 1 | 2 | **2** | ***low*** | Wear protective gloves, goggles and lab coat, masks and shoes.  Display work instructions.  Train and encourage staff to use PPEs.  Ensure compliance. | PPEs provided | 0 | | 0 | | **0** | | ***low*** |
| Improper handling | Foot Injury | R | 1 | 3 | **3** | ***low*** | PPEs provided | 0 | | 0 | | **0** | | ***low*** |
| CR400 | Improper wiring | Electric shock | R | 1 | 4 | **4** | ***low*** | Use PPEs, Display work instructions.  Train and encourage staff to use PPEs.  Ensure compliance. | Fixed wiring issue ,PPEs provided | 0 | | 0 | | **0** | | ***low*** |
| Injection Machine | Upscale heating conditions,  Putting hand inside molding section of machine | Bruises | R | 1 | 4 | **4** | ***low*** | Do not touch the machine. Do not put hand inside the machine when in operation. Wear heat resistive gloves. Display work instructions. Warning signs to “keep a distance of 3 feet when in operation” must be displayed at prominent places. | Trained the operators.  PPEs provided. | 1 | | 4 | | **4** | | ***low*** |
| Two Roll Mill | Skin touch to Hot Rolls | Burn | R | 3 | 2 | **6** | ***low*** | Avoid contact with rolls.  Use heat resistance gloves to touch rolls, masks and clothing.  Display work instructions. | PPEs Provided | 1 | | 1 | | **1** | | ***low*** |
| Exposure to Fumes | Allergies | R | 3 | 2 | **6** | ***low*** | PPEs Provided | 2 | | 2 | | **4** | | ***low*** |
| Improper handling (Hand stuck in two rolls) | Hand Injury | R | 1 | 4 | **4** | ***low*** | Train the operator to work safely and how to use safety lock in emergency, | Trained the operators | 1 | | 4 | | **4** | | ***low*** |
| Extruder | Upscale heating | Scalding Injuries | R | 3 | 2 | **6** | ***low*** | Keep a minimum 2 feet distance from the heated section. Use PPEs | PPEs Provided | 1 | | 1 | | **1** | | ***low*** |
| Dryer | R | 3 | 2 | **6** | ***low*** | PPEs Provided | 1 | | 1 | | **1** | | ***low*** |
| Blown Fill | R | 3 | 2 | **6** | ***low*** | PPEs Provided | 1 | | 1 | | **1** | | ***low*** |
|  | Improper wiring | Electrical Shock | R | 1 | 4 | **4** | ***low*** | All equipment must be grounded be putting in operation.  Explosion proofs motors and switches to be installed on each unit.  Wires must be properly contained through the use of ducts, conduits, cable ties and any other means that are required to manage loose wiring properly. | All equipment are grounded, wires are clamped and properly placed.  Safety shoes provided. | 1 | | 0 | | **0** | | ***low*** |
| 4 | Canteen | Cooking | Short circuit,  Leakage from Gas line  Negligence while cooking | Fire | R | 1 | 5 | **5** | ***low*** | Unplug electric kettles, flying pans and other appliances when not in use.  When cooking, wear short or close-fitted sleeves and keep shirts tucked in.  Never hang towels near the stove. | Precautions Displayed  Food is properly covered and stored at clean place | 1 | | 5 | | **5** | | ***low*** |
| Storing food stuff | Non-Hygienic food storage conditions | Cholera and other stomach diseases | R | 1 | 3 | **3** | ***low*** | Cover the food properly, storage place should be Hygienic. | 1 | | 0 | | **0** | | ***low*** |
| 5 | Storage | Raw Material Storage & Finished goods storage | Chemical Exposure | Lung diseases | R | 3 | 3 | **9** | ***medium*** | Provide appropriate PPEs  Use trolleys for handling.  Display No Smoking” warning signs.  Do not lit match sticks.  Hang Fire extinguishers properly, easily reachable.  Provide training on Fire extinguisher.  Wires must be properly contained through the use of ducts, conduits, cable ties and any other means that are required to manage loose wiring properly. Install required number of exhaust fans | PPEs provided | 2 | | 2 | | **4** | | ***low*** |
| Smoking,  Lighting matchstick,  Short circuiting | Fire | R | 1 | 5 | **5** | ***low*** | Safe wiring has done. Displayed “No Smoking” warning signs. Fire extinguishers are Available | 1 | | 3 | | **3** | | ***low*** |
| Over powering  Manhandling heavy weight , foot injury by improper handling of lifter, injuries due to stuff fall | Injuries | R | 3 | 2 | **6** | ***low*** | Weight lifting limit applied as 25 kg, safety shoe provided. Raw material is safely stacked | 2 | | 2 | | **4** | | ***low*** |
| Insufficient ventilation system | Suffocation | R | 3 | 2 | **6** | ***low*** | Required number of exhaust fans are installed | 1 | | 0 | | **0** | | ***low*** |
|  |  | Blocked emergency gates and passage | Multiple Casualties | R | 1 | 5 | **5** | ***low*** | No stuff should be kept on emergency path, emergency gate should be accessible | Emergency gate is accessible and emergency path has no barrier | 0 | | 0 | | **0** | | ***low*** |
| 6 | Electric Work Shop | Working on machines | Improper handling of Welding plant | Electric shock | R | 2 | 4 | **8** | ***medium*** | Welding plant must be grounded , wear gloves | Welding plant is grounded properly , gloves are provided | 1 | | 0 | | **0** | | ***low*** |
|  | Improper operation on Lathe machine | damage to eyes & body | R | 2 | 3 | **6** | ***low*** | Use Safety Goggles while welding | Safety Goggles provided | 1 | | 2 | | **2** | | ***low*** |
|  | Improper operation on Sawn machine | damage to eyes & body | R | 2 | 3 | **6** | ***low*** | Use Safety Goggles while welding | Safety Goggles provided | 1 | | 2 | | **2** | | ***low*** |
|  |
|  |  |  | Heavy noise | Hearing Loss | R | 5 | 3 | **15** | ***High*** | Use ear plugs | Ear muffs provide | 2 | | 1 | | **2** | | ***low*** |
|  | Generator Room |  |
|  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | |  | |  | |
|  | Office | Use of Computer & document handling | * Poor posture * Excessive duration in a seated position * Incorrect setup of workstation * Glare * Repetitive movements | * Back pain * Neck pain & headaches * improper digestion * depression * Increased Stress Levels * Eye strain | R | 5 | 2 | 10 | ***medium*** | 1. Adjustable chairs, desks and ergonomic accessories such as document holders are available for staff to use 2. Individual staff are responsible for taking breaks and doing  stretches 3. Staff are advised to report any symptoms ASAP | Adjustable chairs provided. | 3 | 1 | | 3 | | Low | |
|  |  | Using Electrical/electronic items | * Electrical faults * Short circuit * Misuse /improper handling | * Electrical fire * Electric shock (skin burn, injury by falling down or fatality) | R | 1 | 5 | 5 | ***low*** | a) Inspection of electrical items  b) Cover all wires  c) Operate/use by trained operator | a) to c) applied | 1 | 5 | | 5 | | Low | |
| 8 | Unit 1 | Natural disaster | Earthquake | Casualties, Human injuries, damage to infrastructure | NR | 1 | 5 | 5 | Low | a) Provide awareness and trainings that how to react in this situation and how to evacuate from the building and find safe place. through notice board, sharing written instructions | a) | 1 | 4 | | 4 | | Low | |
|
| Natural disaster | dust storm | Casualties, Human injuries, damage to infrastructure | NR | 1 | 5 | 5 | Low | a) Provide awareness that how to react in this situation to be safe through notice board, sharing written instructions | a) | 1 | 4 | | 4 | | Low | |
|
| Natural disaster | Exposure to SMOG | Respiratory problems, eye & throat irritation, Suffocation | NR | 2 | 2 | 4 | Low | a) Provide awareness to employee regarding effects of SMOG on health and precautions to safe own self through notice board, sharing written instructions b) Provide masks and goggles to workers | a)& b) | 2 | 1 | | 2 | | Low | |
|
| Natural disaster | Bee & wasp attack, Dengue | Injuries, Irritation, allergic reactions and fatal health affect | NR | 1 | 5 | 5 | Low | a) Provide awareness that how to react in this situation to be safe through notice board, sharing written instructions or by TBT | a) | 1 | 3 | | 3 | | Low | |
|
|
| Natural disaster | Flood/Heavy rain | Casualties, Human injuries , damage to infrastructure | NR | 1 | 5 | 5 | Low | a) Provide awareness that how to react in this situation to be safe through notice board, sharing written instructions or by TBT | a) | 1 | 3 | | 3 | | Low | |
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**Submitted by: Reviewed by: Approved by:**