iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 10 **Issue:** VII **Month of publication:** July 2022

DOI: https://doi.org/10.22214/ijraset.2022.45721

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 10 Issue VII July 2022- Available at www.ijraset.com

Rafi Steel PVL Safety Culture

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Abstract: ***To study and conduct safety audit that the one of reputed esteemed industry of RAFI STEELS PVL, Dindugal. The safety aspects consists of labour safety, Material safety, accident causes, Machinery safety, Ergonomic issues, Hazards identification, and Emergency safety plan. The RAFI STEELS PVL safeties forecasting technique has analysis and find out that if any deviation with compare to actual safety process. The RAFI STEELS PVL safety aspect has learned practically that standard regulation and emergency techniques used in engineering industries. The emergency safety planning and basic safety audits techniques are learned.***

Keywords: Emergency Techniques, Learned Regulation, RAFI STEELS PVL, Safety Audit, Standard

I. INTRODUCTION

Rafi Steels PVL has six branches across south India. Rafi steels are an illustrious supplier and trader of an exclusive range of Industrial Pipes & Stainless products to the clients. These products are developed by a team of skilled employees following quality guidelines set up by the industry. Customers can avail these products from us in different sizes and technical specification as per their needs. The offered range is widely appreciated for their easy installation, low maintenance cost and optimum performance. They range of products is widely appreciated by the clients and finds its applications in various industries. Privately owned and professionally managed, our philosophy is to be a low cost, high quality. Today, the diversity in Rafi Steels is to continuously adapt to the competitive business environment and excel as a business organization.



Figure No: 01 Sheet Metal Rolling

RAFI STEELS PVL, Company has always focused on customer Preference with uncompromising integrity. They carry products and services with the finest value and quality in the market. To meet their customer's expectations, they ensure that their sales people and customer service representatives generate enthusiasm and respond with extra efforts in addressing they customer's needs. They are always looking for new and better ways to improve their business relationships

II. SAFE WORK PROCEDURE

The following safe precautions summarize essential requirements to use and operate earth moving machinery. If required, operator, mechanic, service engineer, site safety personnel should make reference to the safety notes in the operation and maintenance manual provided by OEM to get a complete picture of the machine before it is put into service.

A. Site Preparations

Before any earth moving operation is commenced, site personnel should carry out site preparations for safe operation of the earth moving machinery. The following safety measures should be observed:

1) Provision of temporary fencings and warnings at edges of embankments, excavations and pits against risks of roll over;
2) Provision of goal posts and warning signs in the vicinity of overhead power lines;
3) Arrangement of site traffic controls
4) Provision of adequate site access roads
5) Provision of safety system for other site vehicles such as provision of flashing lights or flags for smaller vehicles in large earth moving site

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6) Provision of safety measures for dumping pits such as the installation of stop logs to rear wheels of dumpers; and
7) Provision of protective equipment for banks men and any ground person assisting in the dumping operations such as reflective vests and communication means.

B. Prepare For Safe Operation

Before starting the engine of the machine, the operator or mechanic should pay attention to the following
Inspect for any evidence of physical damage such as crack, bend or deformation of plates or welds.

1) Check the level of all fluids in the brake, transmission, power steering, engine coolant, hydraulic system. Fill low reservoirs only to proper level.
2) Check various systems for leaks. Inspect all plugs, filler caps and fittings for tell-tale signs of leaks.
3) Before starting the machine, check all controls such as forward and reverse, steering, transmission, and all operating and shutdown controls.
4) Before beginning operation, thoroughly check the area of earth moving operation, its gradients, and the condition of access road, nearby trenches, light poles, tiles, overhead or underground cables, drop-off or overhead obstacles. Other site activities in the vicinity should be checked as well.
5) When the machine is intended to operate on steep slopes or move on inclined road, the machine must be installed with roll over protection structure and seat belt to reduce the hazard to the operating personnel.
6) If an unsafe condition cannot be remedied immediately, notify the supervisor and tag the machine on the start switch and/or other appropriate and prominent position.

C. Common Injuries And Health Risks

1) *Cuts:* The edges of sheet metal are oftentimes razor sharp, creating a serious threat for skin lacerations. If a worker happens to run his or her hand across the edges of a piece of sheet metal, it could slice into their skin. Workers must be conscious of where their hands are located at all times, avoiding the sharp edges. Wearing a pair of cut-resistant gloves is another precautionary step workers can take to help reduce the chance of injury in the sheet fabrication industry. These gloves are designed specifically for sharp edges and objects, offering a valuable layer of protection against common cuts and lacerations.
2) *Burns:* Sheet metal is highly conductive of thermal energy, meaning it heats up quickly around open flames or other sources of heat. Touching a piece of hot sheet metal with the bare skin can result in serious burns. This is just one more reason why workers should wear a pair of gloves when touching or handling sheet metal. Likewise, sheet metal can hold cold thermal energy just as easily as it can heat. If a piece of sheet metal is left outside during the cold winter months, workers should avoid touching it with their bare hands.
3) *Respiratory:* The risk of breathing in potentially harmful fumes and/or dust in the sheet metal fabrication industry. Workers should gear up in a professional-grade respirator (dust mask is not sufficient) if they believe heavy metals or toxic chemicals are present.
4) *Injuries Common To Metal Fabrication:* Due to a variety of hazards found in the workplace environment, metal fabrication can be a potentially dangerous industry if employees do not closely adhere to safety regulations. Fortunately, in recent years, the rate of non-fatal injuries in the industry has significantly dropped, indicating that safer equipment and effective safety regulations are successfully helping prevent common injuries. However, a careless worker can still cause great harm to himself or to others in a trade that is unforgiving of negligence.
5) *The Dangers Of Metal Fabrication:* One reason why metal fabrication can be hazardous is the potential harm stemming from inattentiveness or misunderstanding of safety regulations. Noise or other distractions may result in a loss of concentration, so maintaining caution and remaining mindful of one's surroundings is important. In some shops, workers may risk inhalation of welding fumes and other emissions from lubricants or chemicals. If there is a lack of adequate exhaust and ventilation systems, these fumes and odors can cause disorientation. Since metal is the main component of most operations, workers may be required to lift heavy material. If the proper lifting methods are not followed, injuries may occur. Additionally, excess metal pieces can lead to accidents involving cuts or scrapes. As the metal is being worked, it can produce hazards such as flying shards or spark
6) *Injuries From Poor Guarding:* Access is prohibited to many areas and equipment in a metal fabrication shop. In these locations, guardrails or other barriers can be used to prevent accidental entry. The types of safety barriers found in machine shops usually fall into one of the following categories:

a) Permanently-fixed barrier - surrounds equipment that requires minimal maintenance or cleaning of parts.
b) Interlocked physical barrier - usually has one moveable segment that, if triggered,, automatically shuts the system down to prevent injury.
c) Physical barrier - covers the dangerous components of a working piece of machinery. Only a qualified person with special access should remove this guard.
d) Presence sensing system - features a photoelectric sensor that can electronically detect someone's proximity to a dangerous area or machine.

III. SAFETY RESPONSIBILITIES

The following responsibilities of working their crew in Acetech machinery earth moving components manufacturing

A. Responsibility Of In-Charge

1) The owner of the machine should ensure that the machine is of good mechanical construction and free from patent defects before the machine is used for earth moving operation. He should ensure that the machine is maintained to its efficient state by his service engineer and mechanic in accordance with the OEM's specification and statutory requirement.
2) Tests for service and parking brakes, steering alignment, check for pump efficiency, travel speed test, test for hydraulic pressure of the power system, should be conducted in the workshop within the maintenance intervals and also after repair in accordance with the OEM's instructions.
A systematic recording of all tests and servicing data and periods should be kept and available for reference.
3) The service and maintenance records and essential safety precaution notes should be provided and accompany the machine for the reference of the hirer and operator.
4) The in-charge should provide information concerning the dimensions, weight, and configuration of the machine for loading and unloading, and in case of mishap, the recovery procedure.
5) The in-charge should provide basic, on-the-job, and where appropriate advanced training to machine operator.

B. Responsibility Of Site Personnel

A safe system work procedure of work should be documented by the contractor management and site personnel to ensure the safety of the earth moving operation. It should be distributed to all relevant personnel within the site.
The awareness programme, such as briefing, tool box talks and coaching, should be taken to ensure that the safe system work procedure is fully understood by all relevant personnel. The site personnel should exercise control over the following areas:
1) Never allow unqualified or unauthorized personnel to operate the machine. Preferably, the authorization should be in written documentation
2) Never allow other personnel to ride on the machine unless appropriate seating is provided and only if authorized to do so.
3) Never allow the machine to perform operation which is not specified by the manufacturer
4) Circle off a parking area for the machine when it is not in use.
5) Park in an off the road area, out of traffic. If the machine has to be parked in a traffic lane, use the appropriate barriers, lights and warning signal to warn the approaching traffic, the parking area should be on level ground whenever possible. Ensure that the machine is safely blocked and the parking brake is firmly applied.
6) The site personnel should develop a method statement for the correct loading and unloading for the machine in the site. The procedure recommended by the manufacturer should always be followed.

C. Injection Molding Processing Conditions

Table No: 02 Operating Temperature

Drying	Recommend drying before moulding for approximately 2 - 4 hours at 100 C (212 F). PPOs have low levels of moisture absorption can typically be moulded as received.
Melt Temperature	240 - 320 C (464 - 608 F); higher ranges for grades with higher levels of PPO
Mold Temperature	60 - 105 C (140 - 220 F)
Material Injection Pressure	60 - 150 MPa

D. Chemical And Physical Properties

PPO is poly (2,6 dimethyl p-phenylene) oxide. The ether linkages offer easier processibility. Copolymers are referred to as PPEs (Polyphenylene Ethers).

Typically, the commercially available PPOs (or PPEs) are blended with other thermoplastic materials such as PS (or HIPS), Nylon, etc. These blends are still referred to as PPOs or PPEs. The blends offer superior processibility compared to pure PPOs. Their viscosities are lower.

A range of properties can be obtained depending on the ratios of PPO and PS. Blends with nylons (PA 6/6) offer improved chemical resistance and perform well at high temperatures. The water absorption is low and the molded products have excellent dimensional stability. Blends with PS are amorphous whereas blends with Nylons are crystalline.

The addition of glass fibres reduces shrinkage levels to 0.2%. These materials have excellent dielectric properties and a low coefficient of thermal expansion. The viscosity level depends on the ratio of the components in the blend; higher PPO levels increase the viscosity.

E. Personnel Protective Equipment

PPE is equipment that will protect the user against health or safety risks at work. It can include items such as safety helmets, gloves, eye protection, high- visibility clothing, safety footwear and safety harnesses. It also includes respiratory protective equipment.

F. Safety Training

Safety training is a type of training that occurs to ensure employees are protected from injuries caused by work-related accidents. Safety training is especially important for organizations that use chemicals or other types of hazardous materials in their production. Safety training can also include evacuation plans, fire drills, and workplace violence procedures. Safety training can also include the following:

1) Eye safety
2) First aid
3) Food service safety
4) Hearing protection
5) Construction safety
6) Hazmat safety

The Occupational Safety and Health Administration, or OSHA, is the main federal agency charged with enforcement of safety and health regulation in the United States.

OSHA provides external training to companies on OSHA standards.

Sometimes in-house training will also cover safety training.

Employers or safety coordinators must make sure only programmers have access to the work envelope and full control of the robot when it is in teach mode.

a) Each heavy machinery must be installed according to the manufacturer's guidelines and applicable codes.
b) All heavy machinery must be compatible with environmental conditions.
c) Power used for the robot must follow the specifications of the manufacturer.
d) Each must be secured in such a way that it prevents vibration and tip over.
e) Each must be installed in such a way that hazards like pinch points with robot components and fixed objects are avoided.
f) The zones of movement of the robot must be posted on signs and markings displayed conspicuously on floors, walls and the robot itself.
g) Stops must be placed on the robot system's axes. This way, its motions are limited when under rated load or maximum speed conditions.
h) Proper lockout procedures must be established and followed for preventive maintenance or repair operations. Ensure that heavy machinery manufacturer's preventive maintenance schedule is followed rigorously.
i) Before servicing the heavy machinery, workers must neutralize first the
j) stored energy devices like springs and accumulators.
k) Employees must conduct a periodic check of all safety-critical equipment and connections.

IV. PROBLEM IDENTIFICATION/ SAFETY RECOMMENDATION

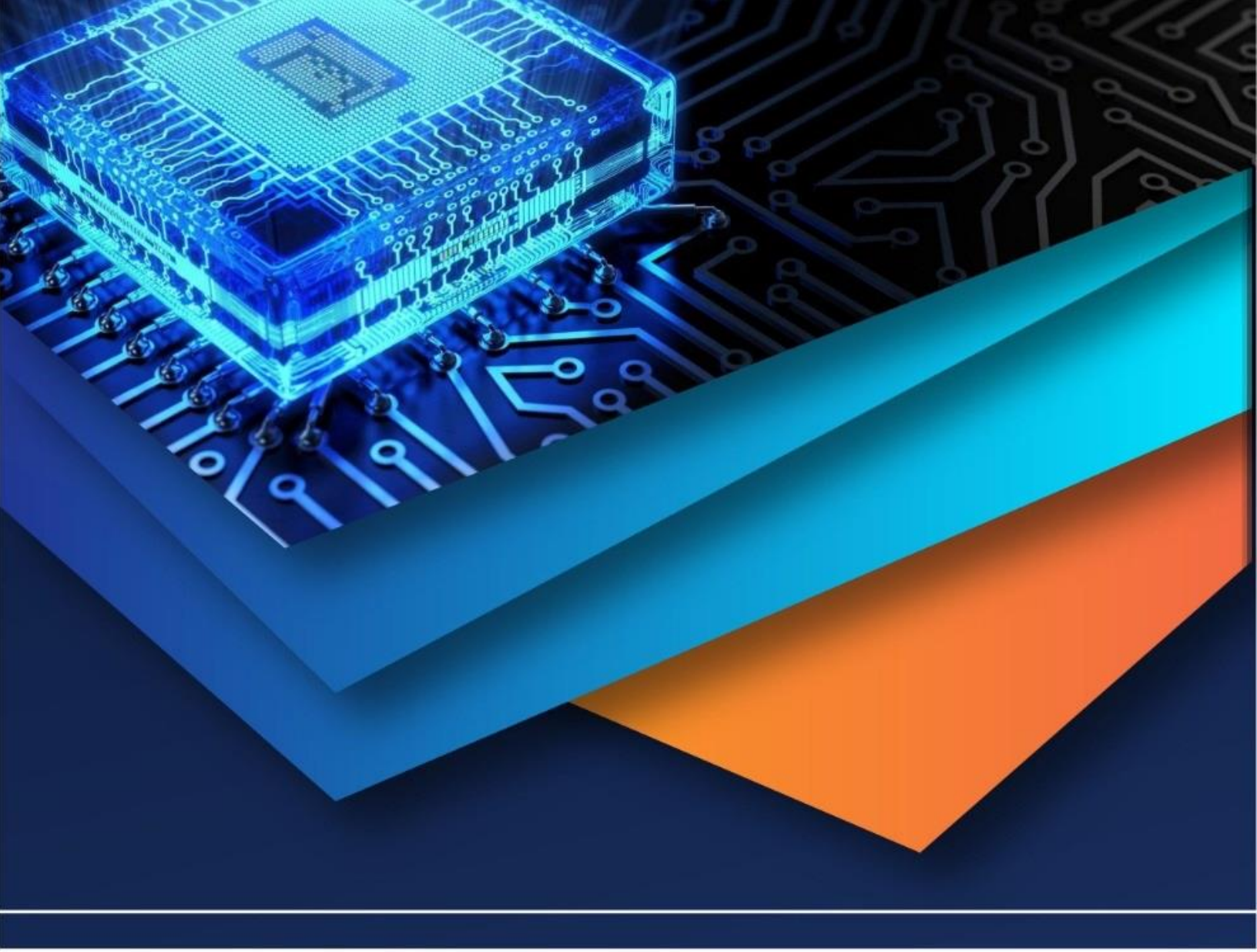
PROBLEM IDENTIFICATION	SAFETY RECOMMENDATION
The hand wash area has more dirt particle. (improper housekeeping	To implement the 5's system
The chin straps most of helmets May damages	May give priority and should better maintain the PPE
The insufficient workers problem that compress the active worker	Proceed workers to appoint the sufficient
The ear plugs has not properly no one insert	To give the training program that how to use the PPE.
Periodical medical check-up does not conducted	May consider the periodical medical check-up does conducted
Some of labours use loose cloths.	Wear tight fitting clothing and/or roll up sleeves for avoiding the dangerous zones.
No one ensure the work piece is clamped properly.	Ensure work piece is clamped securely before starting machine
No one clean their PPE after using.	Given the strong instruction after using the PPE cleaning
No one clean their workplace after finishing the shift	Given the strong instruction clean the floor and work area around the machine
The some of warning sign and caution sign boards are damaged	Ensures the warning or caution instruction boards.

V. CONCLUSION

RAFI STEELS PVL is one popular sheet metal and related product manufacturing industry. The term safety as followed very high tech condition. The sum of partial portion in safety only covered in this phase –I projects. Such as topics sheet metal fabrication technique, safety instruction, common injuries and health risks, ergonomics, worker safety, OSHA's voluntary training guidelines, inspection checklist, and some safety recommendations. The standard safety methods used in RAFI STEELS PVL has been successfully analysed in phase-II. Such as emergency safety techniques, labours safety, PPE, Specific safety precautions in operating sheet metal machines, Hazards and the safety check list are learn practically. The sum of deviation from the RAFI STEELS PVL, standard fore casting techniques are identified and gave some safety recommendation. Finally find out the deviation deviations and give the suitable safety recommendation. The 100% safety implemented in RAFI STEELS PVL, without any standard deviation.

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