

Health, Safety & Environment (HSE) Manual

(Dangerous Goods Storage and Emergency Response Procedures are part of this manual)

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Safety, Health & Environment Policy



HSE Policy Statement

Ducast Factory L.L.C. Believes in an unwavering commitment to protect health and safety of all people involved in our activities and thus achieving an incident free workplace and to protect the environment for future generations.

COMMITMENTS:

- ✓ Adhering with statutory laws and regulations.
- ✓ Observe the basics and principles and strive to eliminate risk factor and minimize risk by prioritizing health, safety and environment throughout our entire process.
- ✓ Safe disposal of non-recyclable waste in line with statutory guidelines.
- ✓ Educate & Train employees to institutionalize HSE values & raise HSE awareness throughout the company.
- ✓ To ensure all employees are competent to do their task and to give them adequate training.
- ✓ To provide necessary resources available to mandate the HSE Policy and achieve its objective.

OBJECTIVES:

- ✓ Reduce Incident Severity and Frequency Rate.
- ✓ Protect personnel from any health hazard that may be associated with the work.
- ✓ Reduce environmental impacts and improve performance regularly.

This policy shall be regularly reviewed to ensure ongoing suitability, compliance and implementation on an ongoing basis and the policy and its intent will be communicated to all Ducast employees and stakeholders.


Jitendra Sangtani
Chief Executive Officer



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Safety, Health & Environment objectives

Reduce the probability of accidents which have the potential to cause injury, disablement & loss of life of employees, visitors and company's assets.

Minimize health impairment of people involved in carrying out the manufacturing activities at different manufacturing locations.

Minimize degradation of the general environment in & around the location, by controlling probable situations which have the potential to adversely affect the environment.

Minimize undue wastage of the material resources including water, raw material and other consumable and electricity required for the manufacturing of the products which help in preventing environment pollution.

Ensure compliance with all statutory laws, rules & regulations.

Educate the employees so that they can be aware of their own safety, health & well being as well as their moral and social responsibility towards the environment.

Train, retrain & thereby motivate the employees so that they are able to identify & eliminate prevailing unsafe practices as well as we able to improve, upgrade & mention their workplace free of unsafe action & condition.

Health, Safety and Environmental Local Regulations and Guidelines:

- Code of Construction Safety Practices, Dubai
- DM PH&SD Technical Guidelines
- Federal Law No. 3 of 1987 - the Penal Code;
- Federal Law No. 5 of 1985 - the Civil Code;
- Federal Law No. 8 of 1980 - Part V Labor Law;
- Department of Transport Specifications;
- Cabinet Decision 13 - 2009 – Group Labour Accommodation General Standards;
- Ministerial Order 32 of 1982 Protection of Workers;
- Ministerial Order No. 37/2 – Medical Care to Workers;
- Ministerial Order 44/1 of 1980, - Inspections of Establishments;
- International Labour Organization Conventions;
- UAE Fire and Life Safety Code of Practice;
- Dubai Food Control Authority Legislations and codes
- Dubai Health Authority

Basic Safety Rules:

- All personnel will undergo induction training.
- The minimum PPE for the factory workers are safety boots, coveralls, safety gloves hard hat, safety glasses.
- Any employee suffering contagious or communicable disease is not allowed to work and they should resume duty only after obtaining medical clearance certificate.
- Visitors who come to the site must first undergo an induction then be escorted around the site. While on site, visitors are to wear the appropriate PPE at all times and follow the site rules
- Smoking is not allowed in the manufacturing and storage areas.
- Safety and personal protection equipment (PPE) are issued to all for staff and workmen and these must be worn all the time during the work as appropriate.
- All material used in the factory are expensive and some are hazardous and make sure that there is no spillage and there is no wastage and they are properly handled and used.
- Know the MSDS of each chemical and know the associated risks involved.
- For working at heights safety belts should be worn.
- Do not enter/repair any equipment without proper authorization and ensure the equipment is properly isolated from all dangers before commencement.
- All maintenance work to be undertaken by authorized and competent maintenance person only.
- Do not block any safety shower, fire appliance or exhaust.
- The minimum PPE for the project is, safety boots, coveralls, safety gloves Hard hat, safety glasses and high visibility vest.
- Any person found to be interfering or misusing fixtures, fittings or equipment provided in the interest of health, safety, Environment, Security or welfare will face disciplinary action.
- Vehicles are not to reverse without banksman.

- Health Safety, Environment, and Security signs and notices must be followed;
- Site fire and emergency alarms, equipment and instructions are designed to protect life and must be adhered to at all times.

FIRE AND EMERGENCY PREPAREDNESS PLANS

The plans will describe Ducast emergency response procedures to be implemented during various emergency situations that may affect the factory/ site or the surrounding community or environment.

The key element of an effective emergency and safety plan is the ability to communicate.

During both production and operation of the Factory, all operations team leaders will be equipped with cellular phones.

Emergency Escape Plan must be produced by the factory team indicating escape routes and assembly point(s). This must be developed, reviewed and approved by GM/ SAFETY ENG. /OFFICER prior to the start of production activities.

The emergency plans cover a number of events that may occur at or near the Factory site by natural causes, equipment failure or by human mistake. The following is a list of potential events that will be covered by emergency plans.

- Production emergencies;
- Personnel injury;
- Factory evacuation;
- Fire or explosion;
- Floods;
- Extreme Weather Abnormalities.

The Factory management team will receive regular emergency response and safety training to assure that effective and safe action will be taken to reduce and limit the impact of an emergency at the Factory/ site.

Production Emergency Plan

In the event of a Production emergency, this Production plan requires an alert broadcast to all onsite personnel and that all employees gather at the predetermined gathering place/ assembly point to receive further instructions.

The Production emergency plan focus primarily on personnel injury, Production related accidents and on weather related events.

Personnel Injury

The following actions will be taken for personnel injuries:

- The Factory Safety Officer or site designee, will be notified of the injury(s) by the employee on the scene;
- A qualified First Aid Attendant will notify immediately to administer first aid until medical assistance arrives;
- The Site GM, Engineer in charge, HSEE or designee, will notify local emergency services (999) for Ambulance, (998) for Police and (997) for Fire Department/ Civil Defense;
- All key Supervisors will be paged or called and advised of the injury;
- Should an employee become injured and require emergency off-site medical transportation, they will be accompanied by a Factory representative such as First Aid Attendant give pertinent information needed;
- As soon as possible, HSE Engineer and team will carry out an accident investigation to the root cause(s) so corrective measures to be taken.
- Once the root causes of the "accident" have been identified, an incident briefing to all concerned employees should be conducted by Management Team.

Evacuation

Under the most severe weather events, a potential threat to the Factory property or workers such as a bomb threat, the Factory area may have to be evacuated.

Once a decision is taken by the management team to evacuate, the following procedures/ actions must be taken:

- All employees will evacuate to the predetermined area(s) unless the evacuation area is in danger;
- The HSE Manager or his designee, will broadcast via all means available such as cell phones, a predetermined alarm and announce the specific egress, gathering area and the nature of the emergency. Acknowledgement from each on-site team leader and their crews will be required;
- The Site Safety Officer or designee, will notify the appropriate local authorities such as fire, injury or hazardous material spills or other disturbances;
- All visitors and vendors/Sub-Contractors will be guided by their key on-site contact;
- Factory Management team will proceed to the assembly area, perform a head count and provide further instructions to evacuated personnel;
- After all employees are accounted for, the employees may leave the area or go back to work, whatever the situation calls for.

Fire or Explosion

All on-site employees are responsible to contribute to the prevention of fire and will be trained on firefighting techniques and the use of fire extinguishers regularly in addition to the orientation training they receive upon arriving to the Production area.

There is potential for an accidental fire to be caused by Furnace Operation ,Production materials/ waste or by sparks thrown from cigarette smoking, welding or cutting torch.

There is also a risk associated with the use and storage of small quantities of flammable liquids and compressed gases, including Production equipment fuels, paints, and cleaning solvents.

Ducast will have fire extinguishers onsite to address any small fire that can be extinguished in its infancy Stages. For larger fires, fire-fighting will be carried out by the local fire department. GM/HSEM will ensure a map displaying the location of all F.E. on the site is in view and this should be updated and valid to reflect the changes of the Production site.

Upon discovering the fire, the following actions will be taken:

Immediate Actions

- Stop all hot work activities.
- Shut down all electrical and fuel sources if necessary.
- Assess the size of the fire and the resources available to suppress it.
- If the fire is small enough, extinguish it.
- Notify others in the area.
- Notify your immediate Supervisor/ Foreman and the site designated Fire Marshal.
- Local fire department if necessary to be called by the designated employee.
- Conduct a head count.
- Evacuate the area if necessary.

Secondary Actions

- Factory Safety Officer to assess the size of the fire and the areas affected by it.
- Determine the cause of the fire and apply corrective measures.
- Prepare documentation in accordance with incident reporting requirements.
- Notify GM and the Management.

Accident Reporting and Investigation

The degree of reporting required in the event of an accident is determined by both the outcome and severity of the same. Reporting of low potential incidents, including First Aid cases and Medical treatment cases of low potential severity is limited within the Site Safety Department through the Site First Aid Room. All other incidents require full incident report in addition to the first information given to the First Aid Room. Any accidents resulting in Fatality, Fire or preventing the person from duty more than 3 days will be reported to concerned authorities by telephonic message or by fax, immediately followed by the accident and a more comprehensive report will be prepared and submitted to the authorities within twenty four hours.

The procedure to be followed in accident reporting is in the following manner.

1. Injured persons shall be moved to the First Aid room as early as possible, irrespective of First aid is given or not.
2. Inform the Supervisor, Safety Department and Factory Manager.
3. Inform the authorities, if required.
4. Detailed Investigation Report will be prepared by the Safety Department and submitted to the Factory Manager and Company Safety Manager.
5. The Factory Manager will submit the report to the authorities concerned.

It is the responsibility of the supervisor to submit the preliminary report to the HSE Department. The Safety Officer and the supervisor who in turn will investigate the incident and furnish the detailed report to the General Manager

During the accident investigation time, witness statements, the contributing causes and root causes will be analyzed and they will also arrange to educate all employees on the Learning Points arising out of the incident for future guidance to others.

General Safety Rules

No employee is allowed to work more than 12 hours a day.

No employee is allowed to work more than 6 days in night shift in a fortnight.

Any employee who feels uncomfortable or fall sick during the course of a working day should immediately to the superior for medical attention or rest as appropriate.

Employees working in painting area needs occupational health check up once in a year.

The company will provide free medical facilities to all employees except for ear, nose, throat problems and self inflicted injuries All employees should use this facility judiciously.

House keeping:

- Work place and surrounding area shall be kept clean and free from obstructions.
- On job completion all tools, equipments and left over material shall be collected stored at designated storage place.
- Waste oily material e material shall be removed and kept in metallic containers.
- Slipping substance such as grease or oil spilled on floor, shall be wiped and cleaned immediately.

Personnel Protective Equipment

Personnel protective equipments (PPE) like

Goggles, face shields, aprons, gloves, helmet, dust muskear plugs etc.

are expected to be worn depends of the place of working.

Stacking materials:

All materials shall be stacked tightly and up to safe height to prevent them from falling or causing some other piles to fall.

No material shall be stacked in passages and emergency exit.

Safety Belt:

All employees in elevated places which are not adequately protected by railing on suitable enclosure shall be worn safety helmet and safety belt with lifeline tide nicely to firm structure or other support independent of equipment on which they are working.

Defective tools:

All defective tools like chisels with irregular heads, spanners with worn jaws, broken hammers shall be brought to the notice of the supervisor and discard it.

Guards:

Machine guard and other safety devices shall not be removed except for making repairs lubricating or cleaning by authorized person. These must be replaced before starting machines.

Clearance :

Incidents often occurs when maintenance work or project work is carried out in a half hazard way. Before taking any maintenance work each job should be analyzed in details to find out what are possible hazards involved in the executing job and identifying methods to be adopted to prevent incidents.

Plant modification Authorization:

Any modification to plant or equipment shall be carried out only after obtaining authorization from authority.

Starting and repairing machinery:

No person shall attempt to operate equipment unauthorized.

Oiling, cleaning and repairing of machinery shall be not normally carried without stopping machinery completely.

No person switch on electricity, turn on gas, air or acid or certain motion and machinery without first making sure that no one in position to be injured.

All expose moving parts of machinery such as pulleys, belts, couplings, chains, fly wheels, rotating collars with projecting shield etc shall be properly guarded.

Electricity:

No one is allowed to the close proximity of live electric supply lines.

The use of defective plugs, sockets and flexible cable shall be avoided.

No one except a person duly authorized by electrical section shall operate any switch gear or other electric equipment except for routine starting and stopping motors and switching on or switching off lights, fans etc.

Ladders and Scaffolds

Ladders with broken and missing rings or split side rails or otherwise defective shall not be used.

No metallic ladders shall be used for electrical work or any work to be executed in close proximity to the electric supply lines or apparatus unless it is rubber lined.

The use of defective scaffolds shall be strictly avoided. All scaffolds shall be inspected by the person in charge of the work before commencement of work.

Welding and Gas cutting

Welding and gas cutting operations, soldering shall be prohibited in proximity to materials and plant where inflammable liquids, gases etc. are likely to be present

No naked flame shall be introduced excepting in dangerous goods storage area.

Vehicles

All vehicles shall comply with traffic regulations within the factory and they shall not exceed the speed limit of 20 Km/h.

Riding on fork lift with fork lift operator is strictly prohibited.

Sitting on the side laps or standing in a truck while in motion is strictly prohibited.

First-aid boxes

First-aid boxes shall be provided in suitable places in every department.

Reporting of accidents

Whenever an injured person is required to be sent to the hospital for treatment, the executive on duty should prepare Accident form & forward them to the personal department .

In case of serious accident information should be sent at once to location head or his designee.

Investigation of accidents:

The essential requirements of successful accidents prevention practice are:

Every accident is investigated expeditiously and causes are analyzed critically.

Remedy for avoiding recurrence is recommended and applied.

Unusual Occurrences:

These are learning incidents which have the potential of accidents / mishaps/ spillages.

These shall be reported, investigated and remedial actions implemented to prevent recurrence.

Emergency

An Emergency shall be declared if an untoward incident (Fire, Major solvent/inflammable material spill or Major injury Accidents) occurs and requires the mobilization of all possible resources to tackle it

Safety in specific areas

The general safety hazards in our industry is identified in all the process area as below

- Dust
- Gases and odors
- Noise
- Heat
- Electrical shocks
- Mechanical impact due to falling objects and handling material
- Vehicles, Fork lift, Over head crane and rotating mechanism

Control of health and safety in specific areas.

Area of work	Potential hazards	Remedies
Pattern shop	-Dust (Wood dust) -Epoxy Chemicals -Solvents -Fire	-During wood working use mask to avoid inhalation of fine wood dust. - Use appropriate gloves and face mask to handle epoxy chemicals and solvents to avoid adverse skin reaction. -Avoid accumulation of wood dust in the work area and dispose them in day to day basis. No naked fire or smoking is allowed in the pattern shop. -Manual or mechanical wood working tools and machinery to handled only by trained employees with required safety wares to avoid any injuries.
Melting	-Heat - Fumes - Explosions - Equipment failure - Handling.	1. All metal charged to in to furnace are free from moisture, oil, grease and any contamination to avoid metal explosion. 2. Don't charge any smoke producing materials like galvanized scrap or non metallic. 3. Use hand gloves, goggles, helmets, face shield, aprons and leg guards to avoid any burn and cut injuries. 4. Do not operate furnace with leaking hydraulic cylinders and any oil hydraulic spills to be cleaned immediately. 5. Keep dump pits clean to empty the furnace in case of emergency. 6. Never by pass the Ground Leak/Metal leak detectors. Failing to do so may cause serious shock and burn injuries. 7. The fume collectors are always on during the operation of the furnace and
Pouring	-Metal spill - Heat and fumes -Equipment failure	-Use only moisture free ladle to avoid metal boiling leading to burn injury. -Use clean ladle with sufficient refractory to avoid ladle puncture during metal handling leading to severe burn injuries. - Ensure the geared ladle in locked position during metal transportation to avoid metal spill

		<p>-Ensure the passage free from human movement during metal handling.</p> <p>-Use goggles, hand gloves, leg guards, helmets to avoid injury caused by metal splatter.</p>
Sand preparation and moulding	<p>-Dust</p> <p>- Noise</p> <p>- Handling</p>	<p>-Use face mask on sand mixing areas</p> <p>-Use ear plugs near moulding machines</p> <p>-carefully operate the moulding machines that will have high pressure squeeze operation in the cycle</p> <p>-Ensure the dust extraction system is on during the entire operation</p>
Knock out	<p>-Noise</p> <p>-Dust</p> <p>-Fumes</p> <p>-Hot material</p>	<p>-Use ear plugs, face mask, and gloves</p> <p>-Ensure the dust extraction system is on during the entire operation</p>
Shot blasting	<p>-Dust</p> <p>-Handling injuries</p>	<p>-Eye protection with gloves and earplugs in this area is a must since the leaking steel shots travelling at a high speed may cause severe eye injury and permanent disablement.</p>
Fettling	<p>-Noise</p> <p>-Vibration</p> <p>-Dust</p>	<p>-Goggle, gloves and should be always worn.</p>
Stores		Refer dangerous goods storage
Moving equipments	Accidents caused by travelling over head cranes and forklifts.	<p>Accidents arising out of improper operation may cause serious and fatal accidents.</p> <p>All the forklifts and overhead cranes are to be periodically inspected and defects to be immediately corrected. These equipment to be annually inspected by a competent third party for certification of their safety compliance for the following paramemeters</p> <p>Safety assessment of Forklifts:</p> <p>Lifting chains</p> <p>Engine/Motor/Battery</p> <p>Hydraulic System</p> <p>Lifting and tilting cylider</p> <p>Mast rollers</p> <p>Forks and attachments</p> <p>Cab and safety equipment</p> <p>Tires/Brakes/Horns/Mirror/Brake Light/Head Light/Reverse Light</p> <p>Reverse audible alarm with revolving beacon</p> <p>Load testing</p> <p>Safety assesmnetsOver head cranes</p> <p>Structural frames and beams</p> <p>Hoist /Wire Rope/ Lifting Hook</p> <p>Travelling cables and pendant controls</p> <p>Limit switches (long travel/cross travel/hoist)</p> <p>Brakes</p> <p>Load testing</p>

Entire plant and storage area	Fire	<p>The following facilities are available.</p> <ul style="list-style-type: none">-A fire/smoke alarm panel connected to various locations of the factory. This is again to connected to local Civil Defence Department through a remote panel to enable them to reach the site in case emergency.-Foam, Dry Powder, CO₂ fire extinguishers are available in the entire premises at various paces with fire hose reel connected fire water pump to fight all fire accidents.-These were periodically inspected by a third party for their working condition
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ENVIRONMENT – POLLUTION

Environment is basically constituted the air we breathe, the water we drink and the soil from which we get our food. Due to various human activities and over population our environment is being adversely affected. This is called Pollution. It is a serious threat to the existence of human life.

In order to tackle this polluting areas and process are identified to initiate and implement preventive measures.

Air pollution:

Emissions from industries, automobiles etc, pollutes the air.

Water Pollution:

Effluents and discharges from industries, domestic sewage etc. mixes with the natural & ground water causing water pollution

Soil Pollution:

Waste form industries, human consumption etc. contain material like plastic, metals, glass, chemicals etc. When the waste is disposed it damages the soil. This causes loss of vegetation. The food products growing on such soil would harm our health if we eat them.

Global Warming:

Due to increase in carbon di oxide content of air the temperature of the atmosphere is Increasing gradually. This causes discomfort to the living beings. The polar snow caps would melt due to the rise in temp. As the result there is a fear of land masses getting submerged when the level of water in the oceans rises.

Ozone Depletion:

There is a protective layer of ozone at the uppermost portion of our atmosphere. This protects the entry of harmful ultraviolet rays from corning to the earth. Due to increase of chlorinated hydrocarbon gases in the atmosphere, this ozone layer is getting damaged. Ultraviolet rays kill living beings. This is a serious threat to the life on earth.

Various forms of pollution listed above if not checked will increase human sufferings and our future generation will have a miserable life.

We can help in preventing further pollution by contributing in the following ways.

- Avoid wastage of water, energy, chemicals and usable.
- Grow more and more trees, plants etc.
- Avoid overconsumption of materials.
- Use everything to the maximum extent possible.
- Use environment friendly materials.
- Follow all pollution control rules and regulations in a systematic manner.

- Air emissions, water discharges & solid wastes should be minimized.
- Before throwing away harmful wastes should be treated and made innocuous.
- Maximize recycle and reuse water, waste and natural resources.
- Share environmental awareness and manage pollution prevention

Air pollution and control measures:

In the foundry dust and fumes are generated in the following areas.

Melting: Fumes and smoke generates from furnace carrying fine particles.

Sand preparation, sand conveying: and knock out: Dust generated during the process

Shot blasting: fine dust generated during the process.

Induction melting furnaces, sand preparation, conveying & knockout area, shot blasting machines in the factory is connected with dust extraction systems. The dust generated in this area is evacuated by separate dust extraction system and filtered through cassette filters and collected in bins for disposal. The filtered air sent out through chimneys.

If any visible emission in the chimneys is found then the particular machine is to be stopped the dust extraction system is to be inspected for repaired immediately. Only after successful repair the machine to be restarted.

Water/soil pollution and control measures.

The process does not generate any trade or process liquid waste. The domestic sewage wastewater is disposed in Municipality's sewage treatment.

The storage area of liquid like diesel and lubricants or provided with underground bunkers and for collection of liquid in case of spills and breakage of containers.

All contaminated and waste lubricants are collected in barrels and disposed off to Municipality waste disposal site.

Water wash of vehicles in the company premises is not allowed.

Waste disposal:

Wastes generated in the factory are classified as Hazardous and non-hazardous.

Hazardous wastes are spent steel blasting media, and paint sludge.

Non hazardous wastes are foundry waste sand, furnace slag, domestic paper and food wastes and packaging materials.

These wastages should be collected and stored in metallic skips and disposed of to municipality designated sites through the municipality approved transport with required documents.

All the timber waste, empty metallic containers, paint tins, scarp waste are to be collected, stored properly and disposed off as per municipal regulations. All used lubricants like engine oil, brake fluid, transmission fluid etc are not drained to earth. Such oils drained from engines, equipment etc are collected in barrels, sealed and carried over to scrap yard by approved scrap dealers.