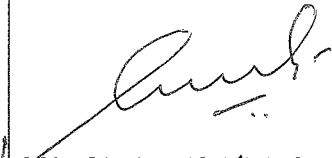
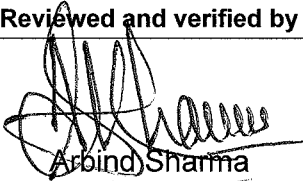
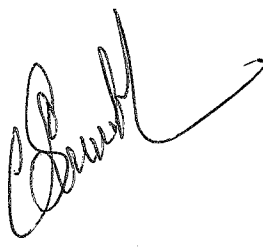
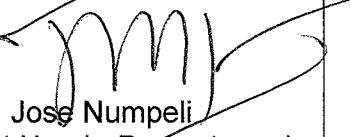



<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref:	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	BLASTING AND PAINTING SAFETY	Page No.	Page 1 of 9

## TECHNICAL STANDARD (TS)

# BLASTING AND PAINTING SAFETY

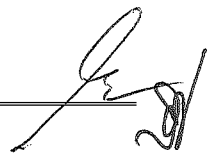
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<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref:	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	BLASTING AND PAINTING SAFETY	Page No.	Page 2 of 9

Document Change Note

Rev. No	Rev. Date	Comments / Changes
00	15-12-2022	New Issue



<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref:	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	<b>BLASTING AND PAINTING SAFETY</b>	Page No.	Page 3 of 9

## CONTENTS

<b>1</b>	<b>PURPOSE</b> .....	4
<b>2</b>	<b>SCOPE</b> .....	4
<b>3</b>	<b>DEFINITIONS</b> .....	4
<b>4</b>	<b>RESPONSIBILITIES</b> .....	4
<b>5</b>	<b>BLASTING AND PAINTING - SAFETY ASSURANCE PROCESS</b> .....	5
5.1	GENERAL REQUIREMENTS .....	5
5.2	HAZARDS DURING BLASTING AND PAINTING WORKS .....	5
5.3	MANUAL BLASTING OPERATIONS IN ENCLOSED BOOTHS .....	5
5.4	MANUAL BLASTING OPERATIONS IN TEMPORARY LOCATIONS .....	6
5.5	SPRAY PAINTING OPERATIONS IN CLOSED SHEDS .....	7
5.6	PAINTING OPERATIONS BY HAND .....	8
<b>6</b>	<b>CHECKING, CORRECTIVE AND PREVENTIVE ACTION</b> .....	8
<b>7</b>	<b>TRAINING</b> .....	8
<b>8</b>	<b>RECORDS</b> .....	9
<b>9</b>	<b>REFERENCE DOCUMENTS</b> .....	9
<b>10</b>	<b>ANNEXURES</b> .....	9

<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref:	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	BLASTING AND PAINTING SAFETY	Page No.	Page 4 of 9

## 1 PURPOSE

To prevent accidents while carrying out manual blasting and painting works.

## 2 SCOPE

This procedure shall apply to all AMNS project sites and related work areas including contractors to meet –

- Legal and regulatory requirements
- AMNS HSE requirements
- ISO 45001 and ISO 14001 standard requirements

## 3 DEFINITIONS

### Blasting

Blasting is a process where small angular or spherical particles are propelled at a substrate by compressed air, mechanical high-speed rotating wheels or water pumps.

### Painting

Painting is a process that involves the application of varnish or paint on different types of surfaces.

## 4 RESPONSIBILITIES

The Project Head is responsible for ensuring that the project is in compliance with the general requirements given in this procedure.

The Project HSE Manager is responsible for providing training to personnel involved in Blasting and Painting activity.

<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref:	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	<b>BLASTING AND PAINTING SAFETY</b>	Page No.	Page 5 of 9

## 5 BLASTING AND PAINTING - SAFETY ASSURANCE PROCESS

### 5.1 GENERAL REQUIREMENTS

Blasting and painting of steel structures and components are carried out by AMNS based on project requirements. It can be done in dedicated workshop or in a place associated with project location.

Blasting includes –

- Impingement of steel/copper grit with the help of compressed air on the steel surface to remove rust and prepare the surface as part of corrosion prevention

Painting includes –

- Application of paint on to pre blasted steel surfaces in the form of spray using compressed air
- Application of paint on to pre blasted steel surfaces/ doors/ windows/ walls/ ceilings by hand using brush/ rollers

### 5.2 HAZARDS DURING BLASTING AND PAINTING WORKS

The potential hazards associated with manual blasting and painting are:

- Flying particles
- Respiratory hazards
- Slip/Trip/Fall
- Skin/ eye contact with hazardous substances
- Use of high pressure compressed air
- Mechanised material handling/ movements
- Muscular sprains and strains (Musculoskeletal Disorders)
- Noise
- Static electricity

### 5.3 MANUAL BLASTING OPERATIONS IN ENCLOSED BOOTHS

- Only trained and experienced personnel shall be engaged in blasting operations.
- All operators should wear correct protective equipment such as blasting hood with supplied air respirator.
- Periodic inspection and replacement of filters for Supplied Air System shall be carried out and inspection status shall be posted on the equipment and records shall be maintained.
- All equipment associated with blasting (Hoses, dead-man switch, hose couplings, blasting gun, whip arrestor) should be properly maintained and inspected daily before use. On noticing any defect, blasting operation should not be started until the defect is rectified.
- Ventilation of the booth shall be maintained as per the design parameters. All blasting activities shall be stopped immediately in case of tripping of ventilation fan.
- Ensure that the movement of work piece is stalled before entering the blasting booth for blasting if the work piece is moved by mechanical means (Winch/ Trolley).

<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref:	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	<b>BLASTING AND PAINTING SAFETY</b>	Page No.	Page 6 of 9

- One person must watch the operator involved in blasting activity and in case of emergency be able to stop the compressor and release the pressure immediately.
- Communication system shall be established between standby person outside the booth and the blasting operator inside the booth to attend to emergencies. It can be visual/ audible signals.
- The nozzle should always be held with both hands and never be directed towards persons/ objects other than the work piece.
- Do not allow tightening any nut or hose connection while grit supply system is running.
- Once blasting is completed, the line pressure and grit should be discharged from the hoses.
- Spent grit / sand to be removed according to waste disposal procedure.
- Third party certification is required for all the pressurized vessels used in the activity.
- All personnel involved in blasting operations shall undergo medical surveillance annually.

The following are some of the PPE requirements.

- a. Clean filtered air supply (using dry compressor)
- b. Sealed blasting helmet.
- c. Hearing protection.
- d. Safety shoes.
- e. Blasting apron.
- f. Heavy gloves.

#### 5.4 MANUAL BLASTING OPERATIONS IN TEMPORARY LOCATIONS

- Only trained and experienced personnel shall be engaged in blasting operations.
- All operators should wear correct protective equipment such as blasting hood with supplied air respirator.
- Periodic inspection and replacement of filters for Supplied Air System shall be carried out and inspection status shall be posted on the equipment and records shall be maintained.
- All equipment associated with blasting (Hoses, dead-man switch, hose couplings, blasting gun) should be properly maintained and inspected daily before use. On noticing any defect, blasting operation should not be started until the defect is rectified.
- The area where grit blasting is being carried out should be temporarily fenced off (protected with tarpaulins)
- All cables, cable trays, switches, instrument are to be properly protected with a suitable covering.
- The nozzle should always be held with both hands and never be directed towards persons/ objects other than the work piece.
- Spent grit to be removed according to Waste Management Plan (Refer: AMNS/Project/SOP/HSEM/11)
- After completion of each area, carryout inspection to ensure that no damage to equipment, has occurred and the area is left in a tidy condition.
- Third party certification is required for all the pressurized vessels used in the activity.

<b>AM/NS INDIA</b> (AMNSIL)	<b>ARCELORMITTAL NIPPON STEEL INDIA LIMITED</b>	Ref:	<b>AMNS/Project/TS/HSEM/19</b>
	<b>HSE MANAGEMENT SYSTEM FOR PROJECTS</b>	Revision No.	<b>00</b>
	<b>HSE PROCEDURES - TS</b>	Effective Date:	<b>15-12-2022</b>
	<b>BLASTING AND PAINTING SAFETY</b>	Page No.	Page 7 of 9

- All personnel involved in blasting operations shall undergo medical surveillance annually.

The following are some of the PPE requirements.

- Supplied air breathing apparatus (using dry compressor)
- Sealed blasting helmet.
- Hearing protection.
- Safety shoes.
- Blasting apron.
- Heavy gloves.

## 5.5 SPRAY PAINTING OPERATIONS IN CLOSED SHEDS

- Only trained and experienced personnel shall be engaged in spray painting operations.
- Always read the label and the Material Safety Data Sheet (MSDS) and follow the maker's instruction.
- Avoid inhaling solvent vapors and / or spray mists. All operators should wear correct protective equipment such as respiratory protection, protective clothing, eye protection
- Periodic inspection of components of spray painting gun, hoses, and couplings shall be carried out and all defective components shall be repaired/ replaced.
- All equipment associated with spray painting (Hoses, dead-man switch, hose couplings, spray gun) should be properly maintained and inspected daily before use. On noticing any defect, painting operation should not be started until the defect is rectified.
- All nearby cables, cable trays, switches, instrument are to be properly protected with a suitable covering while carrying out spray painting
- Places with very little air movement, should be ventilated to prevent formation of possible explosive mixtures of solvents and air
- The spray nozzle should be grounded to prevent static electrical discharge from the spray head to the steel being coated.
- Fire extinguisher to be kept close to the area.
- Avoid eating, drinking, and smoking in the work area.
- The discharge line must always be opened to relieve the pressure even the discharge unit is closed or the pump is not operating.
- No sharp bend in hoses and not being crossed by heavy loads
- After completion of each area, carryout inspection to ensure that no damage to equipment, etc. has occurred and the area is left in a tidy condition.
- Third party certification is required for all the pressurized vessels used in the activity.
- Provide spill containment to collect spilled paints and disposed-off as per Waste Management Plan (Refer: AMNS/Project/SOP/HSEM/11)

The following are some of the PPE requirements.

- Chemical respirator
- Safety goggles

<b>AM/NS INDIA</b> (AMNSIL)	ARCELORMITTAL NIPPON STEEL INDIA LIMITED	Ref.	AMNS/Project/TS/HSEM/19
	HSE MANAGEMENT SYSTEM FOR PROJECTS	Revision No.	00
	HSE PROCEDURES - TS	Effective Date:	15-12-2022
	<b>BLASTING AND PAINTING SAFETY</b>	Page No.	Page 8 of 9

- c. Safety shoes.
- d. PVC suit
- e. Neoprene gloves.

## 5.6 PAINTING OPERATIONS BY HAND

Painting activities involving use of brush/ rollers to paint surfaces are considered under this section.

- Always read the label and the Material Safety Data Sheet (MSDS) and follow the maker's instruction.
- Avoid inhaling solvent vapors and / or spray mists. All painters should wear correct protective equipment such as respiratory protection, protective clothing, and eye protection.
- Ensure that the tools used for surface preparation and painting (Chippers, scrappers, cleaning brushes, painting brushes, and rollers) are properly maintained in good condition. Replace defective tools.
- All nearby cables, cable trays, switches, instrument, etc. are to be properly protected with a suitable covering while carrying out painting
- Places with very little air movement, should be ventilated to prevent formation of possible explosive mixtures of solvents and air
- Avoid eating, drinking, and smoking in the work area.
- After completion of each area, carry out inspection to ensure that the area is left in a tidy condition.
- Third party certification is required for all the pressurized vessels used in the activity.
- Provide spill containment to collect spilled paints and disposed-off as per Waste Management Plan (Refer: AMNS/Project/SOP/HSEM/11)

The following is some of the PPE requirements.

- g. Chemical respirator
- h. Safety goggles
- i. Safety shoes.
- j. PVC suit
- k. Neoprene gloves.

## 6 CHECKING, CORRECTIVE AND PREVENTIVE ACTION

Periodic inspections shall be carried out to assess compliance to this procedure.

Any deviations shall be reported to Project Head & Corrective and preventive action shall be taken.

## 7 TRAINING

- All employees shall be trained in general hazards and precautions to be taken while working with paints/solvents/ other hazardous substances and waste disposal during induction.
- Relevant supervisors/ engineers shall be trained in this procedure for compliance



<b>AM/NS INDIA</b> (AMNSIL)	<b>ARCELORMITTAL NIPPON STEEL INDIA LIMITED</b>		Ref:	<b>AMNS/Project/TS/HSEM/19</b>	
	<b>HSE MANAGEMENT SYSTEM FOR PROJECTS</b>		Revision No.	<b>00</b>	
	<b>HSE PROCEDURES - TS</b>		Effective Date:	<b>15-12-2022</b>	
	<b>BLASTING AND PAINTING SAFETY</b>		Page No.	Page 9 of 9	

- Task specific training shall be carried out for those employees exposed to specific blasting and painting hazards.

## 8 RECORDS

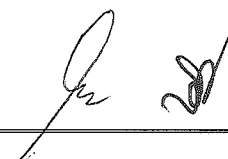
S. No.	Title	Location	Retention period
01	Inspection reports of equipment associated with blasting	HSE Department	Completion of Project

## 9 REFERENCE DOCUMENTS

AMNS/Project/SS/HSEM/08	Hazard identification, risk assessment and control
AMNS/Project/SS/HSEM/14	Occupational Health & Hygiene
AMNS/Project/SS/HSEM/15	Environmental Management Plan
AMNS/Project/SOP/HSEM/11	Waste Management Plan
AMNS/Project/TS/HSEM/13	PPE

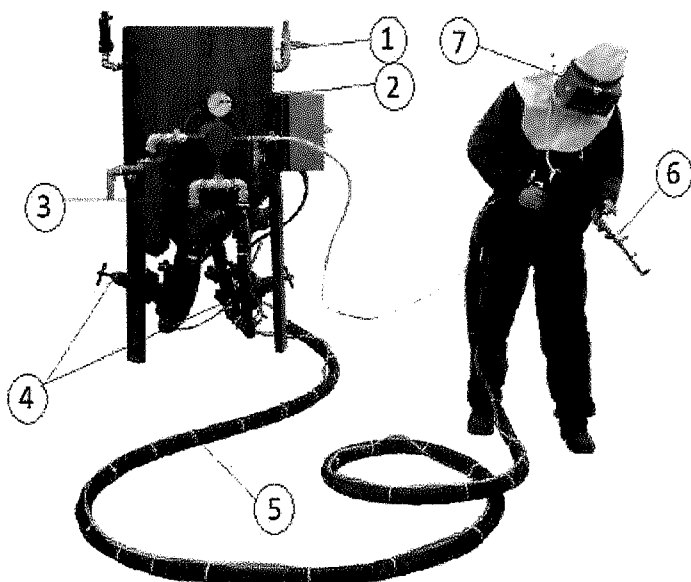
## 10 ANNEXURES

AMNS-Project-TS-HSEM-19-F01      Blasting Set Inspection Checklist



Project Name:		Name of Site Area	
Date		Job Location	
Name of Contractor		Name of Job Supervisor	
Blasting Set No.		Model	

Sr. No.	Description	Yes / No / NA	Remarks
1.	Hopper is made of sound quality of material.		
2.	Pressure gauge in working condition.		
3.	All joints are properly tighten and free from corrosion.		
4.	Inlet and outlet valve should be functional.		
5.	Blasting hose have adequate strength and free from cuts or damages.		
6.	Nozzle should be in good condition with dead manswitch.		
7.	Blasting hood is provided for blaster with physical particle filtration.		
8.	Whip arrestor is in good condition.		



	INSPECTED BY	INSPECTED BY (HSE)
NAME		
SIGNATURE		
DATE		

20