



# HSE Occupational Hazard Factor Monitoring and Occupational Health Management Procedure

## Document No.: CLADDING-HSE-OC-16

### 1 Purpose

To standardize the entire process of occupational hazard factor monitoring and occupational health management of the Company, prevent, control and eliminate occupational hazards, combat occupational diseases, protect employees' health and related rights and interests, and promote the sustainable development of the Company; to comply with the requirements of the *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*, *Administrative Provisions on Occupational Health in the Workplace*, *Classification and Catalog of Occupational Diseases*, *PIPING SYSTEM PTE LTD Occupational Health Management Specifications*, and the occupational health control requirements of the COMPANY; and to establish a closed-loop management and continuous improvement mechanism for occupational health. This procedure is hereby formulated.

### 2 Scope of Application

This procedure applies to all workplaces with occupational hazard factors, relevant departments (HSE Management Department / Quality, Safety and Environmental Protection Department, Logistics and Transportation Department, Warehousing Center, Equipment Management Department, Administration Department, Human Resources Department, all business departments) and all employees exposed to occupational hazard factors of the Company, covering the following scopes:

#### 2.1 Types of Workplaces

- Warehousing Operation Areas: Material handling and storage (dust, strain from heavy lifting);
- Logistics and Transportation Areas: Vehicle driving (noise, strain from prolonged sitting), hazardous chemical transportation (chemical toxicant leakage);
- Equipment Maintenance Areas: Equipment overhaul and welding (noise, welding fumes, chemical solvents);

- Office Areas: Prolonged office work (neck, shoulder and waist strain, eye fatigue), printing rooms (toner dust);
- Auxiliary Operation Areas: Canteens (oil fumes, biological factors such as bacteria), power distribution rooms (electromagnetic radiation), laboratories (chemical toxicants, biological factors).

## **2.2 Controlled Objects**

- Occupational Hazard Factors: Chemical factors (dust, chemical toxicants), physical factors (noise, high temperature, vibration, radiation), biological factors (bacteria, viruses), ergonomic factors (heavy physical labor, poor posture, prolonged sitting);
- Employees Exposed to Hazard Factors: Warehousing handlers, drivers, equipment maintenance workers, welders, printing staff, office workers, canteen staff, laboratory personnel, etc.;
- Occupational Health Management Activities: Identification and evaluation of hazard factors, monitoring, control, occupational health monitoring, training, emergency disposal, occupational disease diagnosis and treatment, and archive management.

## **3 Terms and Definitions**

### **3.1 Occupational Hazard Factors**

Factors generated or existing in occupational activities that may cause adverse effects on employees' health and lead to occupational diseases, including chemical, physical, biological and ergonomic factors.

### **3.2 Occupational Hazard Factor Monitoring**

Activities that use professional instruments and methods to detect, record and analyze the concentration (or intensity) of occupational hazard factors in the workplace, and assess whether they meet national occupational exposure limit standards, including daily monitoring, regular monitoring and special monitoring.

### **3.3 Occupational Health Monitoring**

Management activities that grasp employees' health status, detect occupational health impairments at an early stage, and take timely intervention measures through pre-employment, on-the-job, pre-departure (before termination of labor contract) and emergency (after accident rescue) health examinations, including health examinations, health archive management, health assessment and intervention.

### **3.4 Occupational Exposure Limits (OELs)**

The maximum allowable concentration (MAC) or time-weighted average allowable concentration (TWA) of occupational hazard factors in the workplace stipulated by the state,

which is the basis for judging whether hazard factors exceed standards (e.g., dust TWA  $\leq$  8mg/m<sup>3</sup>, noise 8-hour TWA  $\leq$  85dB).

### **3.5 Occupational Contraindications**

Conditions where employees are more likely to suffer health impairments or have pre-existing diseases exacerbated due to their individual health status when engaging in specific occupations or exposed to specific occupational hazard factors (e.g., asthmatics are contraindicated to dust exposure, and people with hearing impairments are contraindicated to strong noise exposure).

### **3.6 Occupational Disease Diagnosis**

Activities conducted by medical and health institutions approved by provincial health administrative departments to comprehensively determine whether an employee has an occupational disease based on occupational disease diagnosis standards, the employee's occupational history, occupational hazard exposure history, detection results of occupational hazard factors in the workplace, and clinical manifestations.

## **4 Responsibility Assignment**

### **4.1 Company Top Management**

- Bear ultimate responsibility for occupational disease prevention and control;
- Ensure investment in funds required for occupational health management (monitoring, protection, training, physical examinations);
- Approve major decisions on occupational health management (e.g., occupational hazard control projects, management systems);
- Approve emergency plans for occupational hazard accidents and organize the handling of major occupational health incidents.

### **4.2 Management Representative**

- Be responsible for establishing, implementing and maintaining the occupational health management system;
- Supervise the implementation of occupational health management work (e.g., implementation of measures, rectification of hidden hazards);
- Report occupational health performance to the top management (e.g., monitoring compliance rate, abnormal physical examination rate);
- Coordinate and solve major problems in occupational health management.

### **4.3 HSE Management Department / Quality, Safety and Environmental Protection Department (Centralized Management Department)**

- Take the lead in formulating and revising this procedure and occupational health management systems (e.g., hazard factor monitoring plan, health monitoring plan);
- Organize the identification and risk assessment of occupational hazard factors and establish the *Company Occupational Hazard Factor List*;
- Be responsible for occupational hazard factor monitoring: formulate monitoring plans, entrust qualified institutions for testing, analyze results, and supervise rectification of excessive standards;
- Coordinate occupational health monitoring: determine the objects / items / frequency of physical examinations, organize physical examinations, and track the disposal of abnormal results;
- Supervise the implementation of occupational hazard control measures: inspect the operation of engineering protection facilities and the use of personal protective equipment (PPE);
- Organize occupational health training: formulate training plans and conduct training (laws and regulations, protection skills);
- Manage occupational health archives: establish corporate occupational health archives (monitoring, physical examination summaries) and supervise the management of personal archives;
- Participate in occupational disease diagnosis and treatment: assist employees in applying for diagnosis, report to regulatory authorities, and track diagnosis and treatment;
- Organize emergency disposal of occupational hazard accidents: activate plans, coordinate rescue, investigate causes, and formulate rectification measures.

### **4.4 Human Resources Department (Newly Added Responsibilities)**

- Be responsible for the management of employees' personal occupational health monitoring archives: collect physical examination reports, diagnosis and treatment data, and occupational history, and keep them permanently;
- Organize occupational health training: cooperate with the HSE Management Department to conduct three-level occupational health training for new employees and special training for managers;
- Be responsible for the placement and treatment guarantee of occupational disease patients: coordinate the transfer of patients to contraindicated positions and implement work-related injury insurance benefits (medical treatment, rehabilitation, compensation);
- Pay work-related injury insurance for employees in accordance with the law: ensure that occupational disease patients can enjoy statutory insurance benefits;

- Cooperate with the HSE Management Department to conduct pre-departure health examinations: notify employees to complete physical examinations before terminating labor contracts.

## **4.5 Administration Department**

- Be responsible for occupational health management in office areas, canteens and auxiliary operation areas: identify hazards (e.g., oil fumes, bacteria) and implement protection measures (oil fume purifiers, disinfection);
- Procure PPE that meets standards: procure in accordance with the *PPE Allocation Standards*, verify product certificates of conformity, and establish distribution ledgers;
- Provide logistical support for occupational health management: coordinate transportation for physical examinations, training venues, and procurement of emergency materials (first-aid kits, eye wash stations);
- Be responsible for vector control: conduct rodent and cockroach control in canteens, warehouses and other areas to control biological factor hazards.

## **4.6 All Business Departments (Workplace Responsibility Departments)**

- Implement occupational hazard control in their own departments: implement engineering protection (e.g., operation of dust removal equipment) and management measures (e.g., work schedule optimization);
- Supervise employees in their own departments to use PPE correctly: conduct daily inspections of wearing conditions and correct non-standard behaviors;
- Organize employees in their own departments to participate in occupational health activities: cooperate with physical examination arrangements and participate in training and emergency drills;
- Report occupational health abnormalities in a timely manner: report suspected occupational disease symptoms (cough, tinnitus) of employees and excessive hazard factors;
- Participate in the disposal of occupational hazard accidents: organize personnel evacuation in the workplace and assist in blocking leaks.

## **4.7 All Employees**

- Comply with occupational health management systems and operating procedures: use PPE correctly and implement work specifications;
- Participate in occupational health training and health monitoring: participate in training and physical examinations as required, and truthfully report personal health history (e.g., previous diseases);

- Report occupational health hidden hazards and abnormalities: immediately report to department heads when discovering excessive hazard factors (e.g., excessive dust) and physical discomfort;
- Cooperate with occupational disease diagnosis and treatment: provide occupational history and exposure history, and assist diagnostic institutions in investigations;
- Participate in emergency disposal: evacuate in accordance with plans, cooperate with rescue, and protect accident scenes.

## **5 Management Procedures**

### **5.1 Identification and Evaluation of Occupational Hazard Factors (Integrating New 4.1)**

#### **5.1.1 Scope and Content of Identification**

1. Scope of Identification: Cover all workplaces, positions and work activities of the Company, with focus on:
  - Chemical Factors: Warehousing dust (cement, metal), welding fumes, cleaning agents (solvent gasoline), laboratory reagents (acids and alkalis);
  - Physical Factors: Vehicle/equipment noise, outdoor high temperature in summer, electromagnetic radiation in power distribution rooms, equipment vibration;
  - Biological Factors: Food bacteria in canteens (e.g., Salmonella), viruses/bacteria in laboratories, mold in warehouses;
  - Ergonomic Factors: Heavy material handling in warehouses, prolonged sitting in offices, poor posture during equipment operation (e.g., bending for maintenance).
2. Frequency of Identification:
  - Routine Identification: Conduct a comprehensive identification once a year, organized by the HSE Management Department with the participation of all departments;
  - Dynamic Identification: Complete special identification within 7 days when new workplaces/positions are added, processes/equipment are changed, or new chemicals are used.

#### **5.1.2 Identification Methods and Risk Evaluation**

1. Identification Methods:
  - On-Site Investigation Method: Inspect work processes, equipment layout and employee operating postures, and record hazard generation links;
  - Testing and Inspection Method: Conduct preliminary testing in suspected over-standard areas (e.g., near high-noise equipment) to determine hazard intensity;
  - Employee Interview Method: Understand employees' workplace feelings (e.g., dizziness, tinnitus) and previous health abnormalities;

- Data Review Method: Review equipment manuals, chemical MSDS, historical monitoring reports and physical examination archives.

## 2. Risk Evaluation:

- Adopt a combination of quantitative and qualitative methods: quantitative (comparison of detected concentration/intensity with limits), qualitative (health impact degree, number of exposed employees);
- Risk Level Classification: High risk (exceeding standards with severe impacts, e.g., welding fumes), medium risk (close to limits, e.g., warehousing dust), low risk (far below limits, e.g., toner in office areas);
- Determine Priority Control Sequence: Prioritize control of high-risk factors (e.g., install welding fume extraction devices), continuously monitor medium-risk factors, and conduct regular reviews of low-risk factors;
- Formulate the *Company Occupational Hazard Factor Identification and Risk Evaluation Report*, submit it to the Management Representative for approval, and update the *Occupational Hazard Factor List*.

## 5.2 Monitoring of Occupational Hazard Factors (Integrating New 4.2)

### 5.2.1 Formulation of Monitoring Plans

The HSE Management Department formulates the *Annual Occupational Hazard Factor Monitoring Plan* (Appendix A) in December each year, specifying:

1. Monitoring Objects: Medium and high-risk hazard factors included in the list (low-risk factors are monitored once every 2 years);
2. Setting of Monitoring Points:
  - Dust: 2-3 sampling points at warehousing handling points and welding operation points, covering the main work positions of employees;
  - Noise: Vehicle driver seats, equipment operation positions (e.g., near air compressors);
  - Chemical Toxicants: Cleaner use positions, laboratory reagent storage areas;
  - High Temperature: Outdoor operation points (e.g., open-air material loading and unloading) in summer, monitored monthly during high-temperature periods;
3. Monitoring Methods and Standards:
  - Dust: GBZ/T 192.1 *Determination of Dust in Workplace Air* (gravimetric method);
  - Noise: GBZ/T 189.8 *Measurement of Physical Factors in Workplace - Noise* (sound level meter method);
  - Chemical Toxicants: GBZ/T 160 *Determination of Toxic Substances in Workplace Air* (corresponding methods);

- High Temperature: GBZ/T 189.7 *Measurement of Physical Factors in Workplace - High Temperature* (WBGT index method);

#### 4. Monitoring Frequency:

- High-risk factors (welding fumes, strong noise): Once every six months;
- Medium-risk factors (warehousing dust, chemical toxicants): Once a year;
- High temperature: Once a month during summer (June-August);
- Special Cases: Conduct special monitoring within 1 month when processes are changed, employees complain of health discomfort, or previous monitoring exceeds standards.

## 5.2.2 Implementation of Monitoring and Handling of Results

### 1. Implementation of Monitoring:

- The HSE Management Department entrusts occupational health technical service institutions with CMA qualification to conduct monitoring, and tracks the entire process (confirm sampling points, record work status);
- All business departments cooperate: Ensure normal work during monitoring (no temporary shutdown), no interference (no equipment movement), and provide work time records;

### 2. Handling of Results:

- Compliant Results: The HSE Management Department files the monitoring report, updates the *Occupational Health Monitoring Archives*, and publicizes it on the company bulletin board/intranet (for no less than 5 working days);
  - Overstandard Results (e.g., dust TWA =  $10\text{mg}/\text{m}^3 > 8\text{mg}/\text{m}^3$ ):
    - i . The HSE Management Department notifies the responsible department within 1 working day and analyzes the causes of overstandard (e.g., dust removal equipment failure, excessive work hours);
    - ii . The responsible department formulates a rectification plan (equipment maintenance, work schedule adjustment, increased protection) within 3 working days, specifying a time limit (generally  $\leq 15$  days,  $\leq 30$  days for complex issues);
    - iii . After completion of rectification, the HSE Management Department organizes re-monitoring to ensure compliance; if rectification is not completed on time, report to the Management Representative for supervision;
- ### 3. Application of Results: Use monitoring results as the basis for optimizing hazard control measures (e.g., adding exhaust in overstandard areas) and as cases for occupational health training.

## 5.3 Control of Occupational Hazards (Integrating New 4.3)

### 5.3.1 Engineering Control Measures (Priority Control)

The HSE Management Department, together with all business departments, formulates engineering measures for different hazard factors to reduce hazards from the source:

#### 1. Control of Chemical Factors:

- Dust: Install bag filters (fixed points) and high-pressure spray dust suppression (mobile points) in warehouses; set up fume extraction hoods (air volume  $\geq 1500\text{m}^3/\text{h}$ ) for welding operations;
- Chemical Toxicants: Install fume hoods (air exchange  $\geq 12$  times per hour) in laboratories; set up local exhaust hoods at cleaner use positions; use explosion-proof storage tanks + gas alarms in hazardous chemical storage areas;

#### 2. Control of Physical Factors:

- Noise: Select low-noise engines ( $\leq 75\text{dB}$ ) for vehicles and install mufflers; add sound insulation covers for high-noise equipment (air compressors); set up sound insulation rooms in operation areas;
- High Temperature: Build sunshades at outdoor operation points in summer; install industrial fans in warehouses; set up heat insulation layers for high-temperature equipment (e.g., boilers);
- Radiation: Install electromagnetic shielding nets in power distribution rooms; maintain a distance of  $\geq 1.5$  meters between employee operation positions and equipment;

#### 3. Control of Biological Factors:

- Canteens: Install oil fume purifiers and UV disinfection lamps (disinfect once a day); store raw and cooked ingredients separately; sterilize tableware at high temperature ( $\geq 120^\circ\text{C}$ );
- Laboratories: Store biological samples in sealed containers; disinfect workbenches with 75% alcohol after operation; equip biological safety cabinets;

#### 4. Ergonomic Improvement:

- Warehousing: Equip forklifts and hydraulic handling trucks (reduce manual handling); set up anti-slip floors on handling routes;
- Offices: Equip 1 height-adjustable desk for every 10 people; set up adjustable chairs (height 45-55cm) at equipment operation positions.

### 5.3.2 Administrative Control Measures

1. Systems and Responsibilities: Establish an occupational disease prevention responsibility system, clarify control responsibilities of all departments/positions, and incorporate them into performance appraisal;
2. Work Management:
  - Optimize Work Schedules: Implement a shift system for high-risk positions (welding, dust operations) (each operation shift  $\leq 1$  hour); avoid outdoor high-temperature operations during 11:00-15:00 in summer;

- Work Specifications: Formulate the *Dust Operation Operating Procedures* (work upwind, avoid dust generation) and *Chemical Use Specifications* (wear protective equipment, prohibit mixed use);

### 3. On-Site Management:

- Signage Setting: Post warning signs (Appendix E) and occupational exposure limit notification cards (e.g., "Dust TWA  $\leq$  8mg/m<sup>3</sup>") in hazard areas;

- Cleaning and Maintenance: Clean the work site (dust, leaked toxicants) daily; inspect engineering protection facilities (e.g., dust collector filter bags) weekly;

### 4. Personnel Management: Prohibit employees with occupational contraindications from engaging in corresponding positions (e.g., asthmatics not engaged in dust operations); regularly assess the suitability of employees for their positions.

## 5.3.3 Personal Protective Measures (Supplementary Protection)

### 1. PPE Selection and Procurement:

- The HSE Management Department formulates the *Occupational Health PPE Allocation Standards* (Appendix C), specifying PPE types for positions (e.g., N95 masks for dust operations, earplugs with noise reduction  $\geq$  20dB for noise operations);

- The Administration Department verifies product certificates of conformity (e.g., LA mark) when procuring, and prioritizes environmentally friendly and comfortable products;

### 2. PPE Distribution and Use:

- The Administration Department distributes PPE in accordance with standards, establishes distribution ledgers (records of collection/replacement time), and sets replacement cycles (masks: 1 week, earplugs: 1 month, protective clothing: 1 year);

- All departments supervise employees to use PPE correctly (e.g., masks fit the face, earplugs inserted into ear canals); the HSE Management Department conducts monthly inspections; employees who fail to use PPE as required need to retake training and assessment;

### 3. PPE Maintenance: Guide employees to maintain PPE (e.g., mask cleaning, earplug anti-loss); replace damaged/expired PPE in a timely manner; prohibit the use of unqualified PPE.

## 5.4 Occupational Health Monitoring (Integrating New 4.4)

### 5.4.1 Types and Objects of Monitoring

The HSE Management Department formulates the *Annual Occupational Health Monitoring Plan* based on the *Occupational Hazard Factor List* and employees' exposure status, specifying:

Monitoring Type	Applicable Objects	Implementation Timing	Core Physical Examination Items (Appendix B)
Pre-Employment Monitoring	New employees / employees transferred to positions exposed to hazard factors	Within 1 month after employment / transfer	Dust: Lung function + chest DR; Noise: Pure tone audiometry; Toxicants: Routine blood test + liver function
On-the-Job Monitoring	Employees continuously exposed to hazard factors	Dust (high risk): Once a year; Noise: Once a year; High temperature: Once a year	Same as pre-employment + position-specific items (e.g., high temperature: ECG)
Pre-Departure Monitoring	Employees terminating labor contracts who have been exposed to hazard factors	Within 30 days before contract termination	Same as on-the-job + departure health status assessment
Emergency Monitoring	Employees exposed to acute occupational hazard incidents (e.g., hazardous chemical leakage)	Within 24 hours after the incident	Targeted items (e.g., toxicant leakage: toxicant-specific detection)

## 5.4.2 Implementation of Monitoring and Handling of Results

### 1. Organization of Physical Examinations:

- The HSE Management Department selects medical institutions with occupational health examination qualifications, and notifies all departments and employees 1 week in advance (time, location, fasting requirements);
- The Human Resources Department coordinates work arrangements to ensure a 100% physical examination rate; employees who fail to undergo physical examinations on time need to make up for them;

### 2. Handling of Results:

- Normal Results: The HSE Management Department notifies employees, and the Human Resources Department files them in personal occupational health archives;

- Occupational Contraindications: The HSE Management Department notifies the Human Resources Department within 1 working day; transfer employees from the original position within 3 days (e.g., employees with hearing impairments transferred from noise positions) and arrange positions without corresponding hazards;
  - Suspected Occupational Diseases: The HSE Management Department reports to the local health administrative department within 3 working days, assists employees in applying for diagnosis at diagnostic institutions, and arranges employees to be removed from exposure positions during the diagnosis period;
  - Other Health Abnormalities (e.g., hypertension): Advise employees to seek medical treatment; the HSE Management Department tracks rehabilitation status and adjusts work intensity if necessary (e.g., reducing prolonged sitting);
3. Notification of Results: The HSE Management Department notifies employees of physical examination results one-on-one; disclosure of private information is strictly prohibited; if employees have objections to results, assist in applying for re-examination (at institutions with different qualifications).

## 5.5 Occupational Health Training (Integrating New 4.7)

### 5.5.1 Training Objects and Content

Training Objects	Training Content	Training Duration	Training Frequency
New Employees / Transferred Employees	Occupational disease prevention laws and regulations, post hazard factors, PPE use, emergency disposal	No less than 8 hours	Once before taking up posts
Employees Exposed to Hazard Factors	New hazard control technologies, case studies, emergency skills updates	No less than 8 hours/year	Once a year
Managers (Department Heads)	Occupational health management responsibilities, hidden hazard identification methods, system implementation	No less than 4 hours/year	Once a year

Emergency Rescue Personnel	Acute hazard disposal procedures, first-aid skills (e.g., emesis, oxygen administration)	No less than 4 hours/year	Once every six months
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## 5.5.2 Implementation of Training and Assessment

1. Training Methods: Adopt a combination of theory and practical operation (e.g., PPE wearing practice, emergency drills), and use case teaching (e.g., pneumoconiosis caused by excessive dust);
2. Assessment and Evaluation: Organize assessments (theoretical written test + practical operation assessment) after training; employees who fail the assessment need to retake the exam until they pass before taking up posts;
3. Record Management: The Human Resources Department establishes the *Occupational Health Training Records*, files training courseware, attendance sheets and assessment results, with a retention period of  $\geq 3$  years.

## 5.6 Occupational Disease Diagnosis and Treatment (Newly Added, Integrating New 4.6)

### 5.6.1 Diagnosis Procedures

1. Application: When an employee is suspected of having an occupational disease, submit a diagnosis application to the HSE Management Department and provide occupational history and exposure history;
2. Data Preparation: The HSE Management Department collects and provides data required for diagnosis (workplace monitoring reports, occupational health monitoring archives, work records);
3. Implementation of Diagnosis: The employee carries the data to a diagnostic institution approved by the provincial health administrative department for diagnosis; the HSE Management Department cooperates with the diagnostic institution in investigations;
4. Diagnosis Conclusion: The diagnostic institution issues a *Occupational Disease Diagnosis Certificate*, specifying whether the employee has an occupational disease and the type of disease.

### 5.6.2 Benefit Guarantee and Placement

1. Work-Related Injury Insurance: The Human Resources Department applies to the social security department for work-related injury identification within 15 days after receiving the diagnosis conclusion, ensuring that employees enjoy work-related injury insurance benefits (medical expense reimbursement, salary during work suspension for treatment);

2. Treatment and Rehabilitation: Arrange for occupational disease patients to receive treatment and rehabilitation at designated medical institutions; retain their positions during treatment and ensure unchanged benefits;
3. Position Placement: After the completion of treatment, the HSE Management Department assesses the patient's health status; the Human Resources Department arranges the patient to engage in suitable positions (e.g., pneumoconiosis patients transferred from dust positions); heavy physical labor is prohibited;
4. Dispute Resolution: If employees have objections to the diagnosis conclusion or benefits, the Human Resources Department assists in resolving them through labor arbitration and legal channels.

## **5.7 Occupational Health Archive Management (Integrating New 4.5)**

### **5.7.1 Archive Classification and Content**

1. Corporate Occupational Health Archives (Responsible by the HSE Management Department):
  - Basic Data: Company basic information (address, position settings), occupational disease prevention responsibility system, management systems;
  - Monitoring Data: Monitoring plans, monitoring reports, rectification records for overstandard items;
  - Monitoring Data: Annual monitoring plans, physical examination summary reports, list of occupational disease patients;
  - Training and Emergency Data: Training records, emergency plans, drill records, accident handling reports;
2. Employee Personal Occupational Health Archives (Responsible by the Human Resources Department):
  - Identity Data: Employee ID card copies, occupational history (position change records);
  - Monitoring Data: Pre-employment/on-the-job/pre-departure physical examination reports, emergency physical examination reports;
  - Diagnosis and Treatment Data: Occupational disease diagnosis certificates, treatment records, rehabilitation assessments;
  - Protection Records: PPE collection records, training assessment records.

### **5.7.2 Archive Management Requirements**

1. Storage and Preservation: Corporate archives shall be retained for  $\geq 10$  years; personal archives shall be retained permanently (employees may take copies when leaving the company);

2. Access and Confidentiality: Access to archives requires approval from the head of the HSE Management Department/Human Resources Department and is limited to work needs; disclosure of employees' private information is strictly prohibited;
3. Digital Management: Establish an electronic archive system, back up archive data to prevent loss (e.g., dual backup of hard disk + cloud).

## 5.8 Emergency Management (Integrating New 4.8)

### 5.8.1 Formulation of Emergency Plans

The HSE Management Department formulates the *Emergency Plan for Acute Occupational Hazard Incidents*, specifying:

1. Emergency Organization: Command Group (Management Representative), Rescue Group (HSE Management Department + all departments), Medical Group (coordinating medical institutions);
2. Emergency Materials: First-aid kits (tourniquets, iodophor, antidotes), gas masks, eye wash stations, emergency respirators, stretchers;
3. Special Disposal Plans:
  - Chemical Toxicant Leakage: Block the leakage source → turn on ventilation → evacuate personnel → wear gas masks → clean up leaked materials;
  - Dust Explosion: Extinguish fire → evacuate personnel → prevent secondary explosion → clean up dust;
  - Heat Stroke: Transfer to a cool place → physical cooling → replenish salt water → send to hospital;

### 5.8.2 Emergency Preparation and Response

1. Emergency Preparation:
  - Material Allocation: Equip emergency materials in high-risk areas (hazardous chemical storage areas, welding areas) and inspect their integrity monthly;
  - Drills: Conduct emergency drills once every six months (e.g., simulating cleaner leakage) with full participation; evaluate effectiveness after drills and optimize plans;
2. Emergency Response:
  - Incident Occurrence: On-site employees immediately stop work, evacuate to the upwind safe area, and report to the department head + HSE Management Department within 10 minutes;
  - Plan Activation: The HSE Management Department activates the emergency plan, organizes rescue (e.g., blocking leaks, first aid), and calls 120 if necessary;
  - Site Protection: Prohibit unrelated personnel from entering the accident area; retain evidence such as monitoring data and residues;

- Follow-Up Handling: Within 7 days after incident disposal, the HSE Management Department submits an accident investigation report (causes, measures) and updates the emergency plan.

## 6 Supporting Documents

- *Law of the People's Republic of China on the Prevention and Control of Occupational Diseases*
- *Administrative Provisions on Occupational Health in the Workplace* (Order No. 5 of the National Health Commission)
- *Classification and Catalog of Occupational Diseases* (Weijikangfa [2013] No. 48)
- *Occupational Exposure Limits for Hazardous Factors in the Workplace - Part 1: Chemical Hazardous Factors* (GBZ 2.1)
- *Occupational Exposure Limits for Hazardous Factors in the Workplace - Part 2: Physical Factors* (GBZ 2.2)
- *Technical Specifications for Occupational Health Monitoring* (GBZ 188)
- *Specifications for Selection of Personal Protective Equipment* (GB/T 29510)
- *Occupational Health Management Specifications*
- *COMPANY Occupational Health Control Requirements*
- *Company Work-Related Injury Insurance Management Regulations*

## 7 Appendices

### Appendix A: Occupational Hazard Factor Monitoring Plan Form (Integrating New Appendix A)

Monitoring Year	Monitoring Item	Monitoring Point	Monitoring Frequency	Standard Limit	Basis for Monitoring Method	Responsible Department	Previous Monitoring Result	Rectification Requirements (if any)
2026	Dust (Total Dust)	Warehousing handling points, welding	Once every six months	TWA ≤ 8mg/m <sup>3</sup>	GBZ/T 192.1	HSE Management Department	6.5mg/m <sup>3</sup> (Compliant)	None

		operatio n points						
2025	Noise (8-Hour TWA)	Vehicle driver seats, near air compre ssors	Once a year	≤ 85dB( A)	GBZ/T 189.8	HSE Manage ment Depart ment	88dB (Oversta ndard)	Install sound insulatio n cotton, re- monitor in Septem ber
2025	Solvent Gasolin e	Equipm ent cleaning position s	Once a year	TWA ≤ 300m g/m <sup>3</sup>	GBZ/T 160.4 0	HSE Manage ment Depart ment	150mg/m <sup>3</sup> (Complia nt)	None
2025	High Temper ature (WBGT Index)	Outdoor loading and unloadi ng points in summer	Once a month from June to August	≤ 27°C (Light Work)	GBZ/T 189.7	HSE Manage ment Depart ment	25°C (Complia nt)	None

## Appendix B: Occupational Health Examination Item Form (Integrating New Appendix B)

Hazard Factor Exposed	Monitoring Type	Mandatory Items	Optional Items	Examination Cycle
Dust	Pre- Employment	General Examination (height, weight, blood pressure), lung function, chest DR, routine blood test,	Tuberculin Test	Once

		routine urine test		
Dust	On-the-Job	General Examination, lung function, chest DR, routine blood test	Lung CT (for suspected abnormalities)	High Risk: Once a year; Low Risk: Once every 2 years
Noise	Pre-Employment / On-the-Job	General Examination, pure tone audiometry (0.5-8kHz), otoscope examination, ECG	Acoustic Immittance Test	Once a year
Chemical Toxicants (Solvents)	Pre-Employment / On-the-Job	General Examination, routine blood test, liver function (ALT, AST), routine urine test, solvent gasoline metabolite detection	Liver and Spleen B-Ultrasound	Once a year
High Temperature	Pre-Employment / On-the-Job	General Examination, blood pressure, ECG, blood glucose, liver and kidney function	Electrolyte Detection	Once a year

## Appendix C: Personal Protective Equipment (PPE) Allocation Standards (Integrating New Appendix C)

Hazard Factor Exposed	Position	Mandatory PPE Type	Optional PPE Type	Replacement Cycle	Wearing Requirements
Dust	Warehousing Handlers, Welders	N95 Dust Masks (LA Certified)	Dust Masks (for high dust levels)	1 week	Fit the face without air leakage; replace every 4 hours
Noise	Drivers, Equipment Maintenance Workers	Anti-Noise Earplugs (Noise Reduction $\geq$ 20dB)	Anti-Noise Earmuffs	1 month	Insert into ear canals correctly without looseness; wear throughout the operation
Chemical Toxicants	Maintenance Workers, Laboratory Personnel	Gas Masks (Organic Vapor Type)	Chemical-Resistant Gloves, Chemical-Resistant Clothing	Masks: 1 week; Gloves: 2 weeks	Masks fit the face; gloves cover wrists; wear when exposed to toxicants
High Temperature	Outdoor Operation Personnel	Heat Radiation-Resistant Clothing, Sun Hats	Cooling Vests	1 year	Wear throughout the operation; keep clothing clean
Biological Factors	Canteen Staff, Laboratory Personnel	Disposable Medical Masks, Disposable Gloves	Protective Goggles	Once a day	Wear when contacting food/samples; discard after use

## Appendix D: Occupational Health Monitoring Archive Directory (Integrating New Appendix D)

### 1. Corporate Occupational Health Monitoring Archives

1. Company Basic Information (name, address, legal representative, list of positions exposed to hazard factors);
2. Occupational Hazard Factor Monitoring Reports (annual summary, rectification records for overstandard items);
3. Occupational Health Examination Summary Reports (annual examination rate, abnormal rate, disposal status);
4. List of Occupational Disease Patients (name, position, diagnosis conclusion, placement status);
5. Occupational Health Training Records (training courseware, attendance sheets, assessment results).

## 2. Employee Personal Occupational Health Monitoring Archives

1. Employee Basic Information (ID card copy, labor contract);
2. Occupational History and Occupational Hazard Exposure History (position change records, exposure duration);
3. Occupational Health Examination Reports (pre-employment, on-the-job, pre-departure, emergency);
4. Occupational Disease Diagnosis and Treatment Data (diagnosis certificates, medical records, rehabilitation assessments);
5. Personal Protective Equipment Collection Records (collection time, type, replacement).

## Appendix E: Requirements for Setting Occupational Hazard Warning Signs (Integrating New Appendix E)

Hazard Type	Name of Warning Sign	Setting Location	Setting Requirements	Basis for Sign Style
Dust	Caution: Dust	Entrances to dust-generating places, near operation points	Prominent location (height 1.5-1.8 meters), unobstructed, 2 signs/100 m <sup>2</sup>	GBZ 158
Noise	Caution: Noise Hazard	Entrances to high-noise areas, near equipment operation positions	Set on both sides of entrances, font size ≥ 20cm	GBZ 158

Toxic Substances	Caution: Poison	Toxic substance storage areas, near use positions	Distance from substances $\leq$ 1 meter; MSDS access available nearby	GBZ 158
High Temperature	Caution: High Temperature	Entrances to high-temperature operation areas, near equipment	Increase sign brightness during summer high-temperature periods; reflective at night	GBZ 158
Biological Factors	Caution: Biological Hazard	Laboratory entrances, canteen food storage areas	Specify protection requirements (e.g., "Wear Masks") next to signs	GBZ 158

## 8 Supplementary Provisions

**8.1 This procedure shall be interpreted by the Company's HSE Management Department / Quality, Safety and Environmental Protection Department.**

**8.2 This procedure shall come into force on the date of issuance. In case of any inconsistency between the existing occupational health management regulations and this procedure, this procedure shall prevail.**

**8.3 This procedure shall be revised once a year, or updated in a timely manner according to updates to national laws and regulations, changes in the Company's business (e.g., newly added laboratories), and rectification requirements for occupational health incidents.**

**8.4 For matters not covered in this procedure, refer to the *Law of the People's Republic of China on the Prevention and***

***Control of Occupational Diseases* and relevant laws, regulations and standards.**