



Supplier Responsibility Standards

Version 4.1.1



Supplier Responsibility Standards

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Supplier Responsibility Standard

Anti-Discrimination

1.0 Purpose

This Anti-Discrimination Standard (“Standard”) supplements the Apple Supplier Code of Conduct (the “Code”) by providing additional clarity about the prevention of discrimination. Apple’s suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicts between this Standard and the Code.

2.0 Scope

This Standard applies to Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall not discriminate against any worker based on age, disability, ethnicity, gender, marital status, national origin, political affiliation, race, religion, sexual orientation, gender identity, union membership, or any other status protected by country law, in hiring and other employment practices. Supplier shall not require pregnancy or medical tests, except where required by applicable laws or regulations or prudent for workplace safety, and shall not improperly discriminate based on test results.

4.0 Supplier Responsibility Standards

4.1 Anti-Discrimination

Supplier shall not discriminate against any worker based on race, color, age, gender, sexual orientation, ethnicity, disability, religion, political affiliation, union membership, national origin, marital status, or gender identity, unless prohibited by law, in hiring and employment practices such as applications for employment, promotions, rewards, access to training, job assignments, wages, benefits, discipline, and termination.

Workers shall be provided with reasonable accommodation for religious practices.

Supplier shall ensure that there is no **discrimination** in compensation based on the characteristics listed above.

Recruitment and employment policies and practices, including job advertisements, job descriptions, and job performance/evaluation policies and practices, shall be free from any type of discriminatory bias.

Definitions

Discrimination The unjust, prejudicial, and/or unwarranted distinguishing treatment of an individual based on their actual or perceived membership in a certain group or category.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at a Supplier’s facility.

If not required by law, Supplier shall protect workers who, in good faith, allege discrimination in employment, promotions, rewards, access to training, job assignments, wages, benefits, discipline, and termination.

4.2 Anti-Discrimination Policy

Supplier shall have a written policy against discrimination.

The policy must clearly state that no worker will be punished or retaliated against for reporting discriminatory practices.

Supplier shall effectively communicate its anti-discrimination policy to all supervisors, managers, and workers. This communication shall include information about **hazardous** jobs, workplace accommodations for non-hazardous conditions, and voluntary medical testing.

4.3 Pregnancy Anti-Discrimination

Supplier shall comply with all applicable laws and regulations regarding pregnancy and postnatal employment protections, benefits, and pay.

Supplier shall not (i) refuse to hire an applicant for a non-hazardous position or (ii) terminate a worker's employment solely based on the worker's pregnancy status.

Supplier shall not prohibit female workers from becoming pregnant nor threaten female workers with adverse employment consequences, including dismissal, loss of seniority, or deduction of wages, in order to discourage them from becoming pregnant.

Supplier shall take reasonable measures to ensure the safety and health of pregnant women and their unborn children including accommodating the worker in a non-hazardous position.

4.4 Medical Anti-Discrimination

Supplier shall not, on the basis of a person's **medical status**, make any employment decisions that negatively affect the person's employment status unless such decision is dictated by the inherent requirements of the job or is **prudent for workplace safety**.

Supplier shall not discriminate against a worker in eligibility for another position based on the worker's refusal to take a **medical test** where there is no **required medical test** for such position.

Supplier shall make reasonable efforts to accommodate workers with chronic illnesses, which may include rearranging working time, providing special equipment, opportunities for rest breaks, time off for medical appointments, flexible sick leave, part-time work, and return-to-work arrangements.

4.5 Medical Testing

Supplier shall not require pregnancy tests or medical tests, including but not limited to Hepatitis B or HIV, either as a condition for employment or as a requirement for continued employment.

Pre-employment or post-employment pregnancy tests or medical tests are allowed only if the following conditions are met:

Definitions

Hazardous A situation or condition having the potential to cause injury or death.

Medical status Past or current medical condition of a worker.

Medical test A medical procedure performed to detect, diagnose, or evaluate disease, disease processes, and disease susceptibility, and/or to determine a course of treatment.

Prudent for workplace safety Necessary to protect the worker's health, safety, or ability to perform his or her job or for the protection of other workers at the facility.

Qualified health professional Licensed or certified individual (either on- or off-site) with the knowledge, training, and experience necessary to review and assess a facility's operating environment and any associated risks to the worker.

Required medical test A medical test that is required by law or that a qualified health professional determines in writing is prudent for workplace safety.

- Applicable law requires the pregnancy test or the medical test is determined (in writing) by a **qualified health professional** to be required as a safety measure prior to working in a particular environment.
- The worker provides affirmative written consent to the test.

Supplier shall identify (in writing) the jobs for which workers must take a pregnancy test or medical test. Workers refusing to take a required medical test or pregnancy test will not be eligible for these jobs.

Supplier shall provide documentary evidence that any medical test or other test it requires workers to take is otherwise required by law or has been properly determined by a qualified health professional to be prudent for workplace safety.

Supplier shall identify positions deemed hazardous for pregnant workers or workers with a medical condition. At a minimum, these must be communicated with persons responsible for recruitment, allocation of tasks, and the worker before the worker begins to work at that position.

4.6 Confidentiality of Records

Confidentiality of all pregnancy and medical records shall be maintained in accordance with applicable laws and regulations.

4.7 Reporting

Supplier shall provide workers with a mechanism to report incidents of discrimination.

Supplier shall ensure that workers are not retaliated against for good-faith reporting of discrimination at the workplace.

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Supplier Responsibility Standard

Anti-Harassment and Abuse

1.0 Purpose

This Anti-Harassment and Abuse Standard (“Standard”) supplements the Anti-Harassment and Abuse section of the Apple Supplier Code of Conduct (the “Code”) by providing additional clarity regarding the management of Harassment at the workplace. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall commit to a **workplace** free of **harassment** and abuse. Supplier shall not threaten **workers** with, or subject them to, harsh or inhumane treatment, including but not limited to verbal abuse and harassment, psychological harassment, mental and physical coercion, and sexual harassment.

4.0 Supplier Responsibility Standards

Supplier must ensure that all workers are treated with respect and dignity. No form of harassment shall be tolerated at the workplace, including but not limited to physical, **psychological harassment**, **sexual harassment**, or **verbal harassment**, or abuse.

Supplier shall comply with all national laws, regulations, and procedures concerning discipline, violence, harassment, and abuse.

Supplier shall not use monetary fines or penalties as a means to maintain labor discipline, including for poor performance or for violating company rules, regulations, or policies.

Access to food, water, toilets, medical care, health clinics, and other basic necessities shall not be used as reward or as a means to maintain labor discipline.

Supplier shall not impose unreasonable restrictions on movement within the workplace nor on entry or exit of company-provided facilities.

Definitions

Harassment Unwanted behavior of a repeat or singular instance that can take place between a manager/supervisor and a worker (vertical relationship), between a worker and another worker (horizontal relationship), between a manager and a contract or outsourced worker, and between workers and service providers, clients, or other third parties.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier’s facility.

Workplace A physical place in which any of the following occur:

- Workers conduct work or frequently enter for business.
- Employment-related business is conducted as a result of employment responsibilities or employment relationship.
- Work-related social functions, conferences and training sessions, official business travel and lunches, dinner, or promotional campaigns organized for client or partners, telephone conversations, and communications through electronic media.

Policy

Supplier shall have a written policy against harassment and abuse. The policy at a minimum should include:

- A clear definition of what constitutes sexual harassment
- A statement prohibiting harassment and abuse consistent with this Standard and applicable laws and regulations
- Description of method(s) for reporting internal grievances/complaints regarding harassment and abusive behavior
- Disciplinary rules and penalties against the harasser/abuser and against those who make false accusations
- A statement regarding the policy of non-retaliation for persons reporting cases of harassment in good faith.

Communication

Supplier shall effectively communicate its anti-harassment and abuse policy to all workers, supervisors, and managers at the workplace.

Training on harassment prevention shall be mandatory for all workers, supervisors, and managers during the initial orientation period and reinforced via refresher training on an annual basis. Records of completed training shall be maintained and made available immediately to Apple upon its request.

Grievance Procedure/Complaint Mechanisms

Supplier shall implement effective and accessible complaint procedures for workers, including contracted workers, to report instances of harassment.

Supplier shall develop procedures suitable for its workplace. A grievance procedure shall, at a minimum, contain a step-by-step description of the process by which complaints are reported, processed, and investigated as well as an appeal procedure by which any party that is not satisfied with the resolution may appeal the result of the investigation to the higher authorities.

Supplier shall make available multiple channels for reporting complaints of harassment, one of which must be an anonymous system for filing complaints.

All personnel that receive or process complaints regarding harassment shall be formally trained to address such complaints.

Non-Retaliation

There shall be no form of retaliation against any person reporting a complaint in good faith.

Definitions

Psychological harassment Humiliating or intimidating verbal or non-verbal behavior, including the throwing of objects.

Sexual harassment

- Unwelcome sexual advances, requests for sexual favors, and all other verbal or physical conduct of a sexual nature, when (a) submission to such conduct is made either explicitly or implicitly a term or a condition of an individual's employment; (b) an employment decision is based on an individual's submission to or rejection of such conduct; or (c) such conduct has the purpose or effect of unreasonably interfering with an individual's work performance by creating an intimidating, hostile, or sexually offensive environment.
- Offensive sexual comments, jokes, innuendoes, and other sexually oriented statements.
- Display of pornographic materials or sexually explicit images.

The following shall not be construed as sexual harassment:

- Interaction based on mutual consent.
- Occasional compliments that are socially and culturally acceptable and appropriate unless they make an individual uncomfortable.

Verbal harassment Chronic use of implied or direct threats.

Workplace Discipline

Supplier shall have written disciplinary rules, procedures and practices that embody a system of **progressive discipline**.

The disciplinary system shall be applied in a fair and nondiscriminatory manner and include a management review by an objective party senior to the manager who imposed the disciplinary action.

Supplier shall maintain written records of all disciplinary actions taken.

Disciplinary rules, procedures and practices shall be clearly communicated to all workers.

Workers must sign all written records of disciplinary action against them.

Records of disciplinary action must be maintained in the worker's personnel file.

Supplier shall have a system to discipline supervisors, managers, or workers who engage in any **physical abuse**, sexual harassment or sexual abuse, psychological harassment, or verbal harassment or **verbal abuse**, through measures such as compulsory counseling, warnings, demotions, and terminations or any combination thereof, regardless of whether such action was intended as a means to maintain labor discipline.

Security Practices and Personnel

All security practices shall be gender appropriate and nonintrusive.

Search of bags and other personal items for the purpose of theft prevention is acceptable provided searches are applied equally across all employees regardless of position or other factors.

Security personnel shall receive training on harassment and abuse prevention and their roles and responsibilities. All training shall be documented.

Body searches and physical pat-downs shall only be undertaken following appropriate procedures. Any physical search shall be conducted in the open, or as culturally accepted, and shall be conducted by security personnel of the same gender as the person being searched.

Documentation

Supplier shall maintain and make available immediately to Apple upon its request all documentation regarding allegations of harassment and abuse.

Definitions

Physical abuse Includes any physical contact with the intent to injure or intimidate (including the throwing of objects) and disciplinary measures that cause physical discomfort.

Progressive discipline A system of maintaining discipline through the application of escalating disciplinary action moving from verbal warnings to written warnings to suspension and finally to termination.

Verbal abuse Chronic shouting and/or use of insulting or offensive language.

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Supplier Responsibility Standard

Prevention of Involuntary Labor

1.0 Purpose

This Prevention of Involuntary Labor (“Standard”) supplements the Apple Supplier Code of Conduct (“the Code”) by providing additional clarity regarding a Supplier’s use of private employment agencies and foreign workers. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall ensure that all work is voluntary. Supplier shall not traffic persons or use any form of slave, forced, bonded, indentured, or prison labor. This includes the transportation, harboring, recruitment, transfer, or receipt of persons by means of threat, force, coercion, abduction, fraud, or payments to any person having control over another person for the purpose of exploitation.

Supplier shall not withhold **workers’** original government-issued identification and travel documents. Supplier shall ensure that workers’ contracts clearly convey the conditions of employment in a language understood by the workers. Supplier shall not impose unreasonable movement restrictions within the workplace or upon entering or exiting company-provided facilities.

Supplier shall ensure that the third-party recruitment agencies it uses are compliant with the provisions of this Code and the law. Suppliers recruiting foreign contract workers either directly or through third party agencies shall be responsible for payment of all recruitment-related fees and expenses.

4.0 Supplier Responsibility Standards

4.1 Supplier shall comply with all **applicable laws and regulations** concerning the prohibition of forced labor and human trafficking.

4.2 All workers shall have the right to freely enter into and to terminate their employment.

4.3 Supplier shall have a written employment policy that is in accordance with the applicable requirements of applicable laws and regulations, the Apple Supplier Code of Conduct, and Supplier Responsibility Standards.

Definitions

Applicable laws and regulations All laws, rules, regulations, and legally binding procedures, directives, and guidance applicable to the Supplier’s operations and its employment and management of workers.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier’s facility.

4.4 Identity Documents

Workers shall retain possession or control of all identity documents, such as passports, identity papers, travel documents, and other personal legal documents.

Supplier shall not require surrender of original identity documents, withhold identity documents, or restrict workers' access to identity documents for any reason.

Supplier may obtain and retain copies of workers' original identity documents.

Suppliers and **private employment agencies (PEAs)** are not permitted to hold workers' passports.

4.5 Contracts

Workers, including **foreign workers**, shall sign a written employment **contract** prior to performing any work at a Supplier's facility.

Supplier shall ensure that the employment contract is written in a language that the worker understands.

Supplier shall ensure that all workers receive a signed (by the applicable employer) copy of the employment contract and that the material terms of the contract are understood by the worker. For more details, reference Signed Contract in Apple Supplier Responsibility Standard on Wages, Benefits and Contracts.

Definitions

Foreign worker Workers whose nationality/country of origin and permanent residence is different from the country in which Supplier's facility is located.

Private employment agency (PEA) Private service enterprises, including sub-agents, carrying out, under contract and in exchange for financial compensation, operations on behalf of individuals or enterprises, whose role is to provide access to employment or career progression by filling employment vacancies.

Definitions

Contract

Terms to be included in the formal employment contract for foreign workers are:

- Worker's full name
- Date of birth
- Passport number or equivalent government-issued identification
- Emergency contact information
- Terms and conditions regarding safekeeping and possession of identity documents during the employment contract term

Duration and Working Conditions

- Contract duration
- Terms and conditions for contract termination and contract renewal, if any. Employment contracts shall specify a period for reasonable notice for employment contract termination by the foreign worker, not to exceed one month.
- Nature of work and place where it will be performed
- Detailed summary of living conditions, including costs (if any) for meals and accommodation
- Date of eligibility for reimbursement of deposit
- No terms that deny a foreign worker the right to organize or engage in collective bargaining

Pay, Hours, and Benefits

- Expected regular working hours, overtime hours, frequency of rest days, and holidays
- Clearly defined regular, overtime, and holiday wage rates, including maximum allowable overtime hours
- Wages, benefits, and hours shall be in accordance with applicable laws and regulations, Apple's Supplier Code of Conduct, and Supplier Responsibility Standards
- Any applicable bonuses and allowances
- Quantitative estimates and descriptions of each line item to be deducted from wages
- Estimates of the minimum and maximum net pay the foreign worker could expect to receive each month. Maximum net pay shall be based on maximum of 60 hours of work per week.
- Descriptions of non-cash compensation and work-related benefits including medical and social insurance benefits, and sick, emergency, and annual leave

4.6 Deposits

Deposits from workers are prohibited unless required by applicable laws and regulations. If a deposit is legally required, Supplier shall ensure that a receipt is provided for any deposits made by workers and that such deposits shall be returned in full to the worker as expeditiously as practicable, but no later than one month after the worker's employment has terminated or reason for such deposit has ended, whichever is earlier.

4.7 Freedom of Movement

Supplier shall not confine or restrict worker's freedom of movement inside the place of production or Supplier-provided facilities, including access to drinking water and the worker's dormitory room, except where necessary for worker safety and permitted by applicable laws and regulations.

Supplier shall not restrict worker access to bathrooms in any manner, including limiting bathroom breaks or non-payment of bathroom breaks.

4.8 Forced Overtime

Supplier shall not impose overtime where workers are unable to leave the work premises.

All overtime shall be voluntary.

4.9 Production Quota

Supplier shall not set production quotas or piecework rates at such a level that workers need to work beyond regular working hours (excluding overtime), as described in the Apple Supplier Code of Conduct, to earn the legal minimum wage or the prevailing industry wage.

4.10 Private Employment Agencies

4.10.1 Pre-Selection Due Diligence

Supplier shall conduct pre-selection due diligence to ensure compliance with applicable laws and regulations, and the applicable requirements of the Apple Supplier Code of Conduct and Supplier Responsibility Standards.

4.10.2 Recruitment Due Diligence

Supplier shall conduct due diligence, including but not limited to onboarding interviews with a sample of workers recruited or hired through private employment agencies (PEAs) to ensure that workers were provided accurate details of the nature and place of work, living conditions, the term of the employment contract (if applicable), working hours, base wages for regular hours, rates for overtime and holiday wages, and applicable deductions and benefits.

4.10.3 Audits

Supplier shall conduct regular audits of PEAs from whom it obtains workers to ensure compliance with applicable laws and regulations, the Apple Supplier Code of Conduct, and Supplier Responsibility Standards.

4.10.4 Licenses

Supplier shall ensure that PEAs have valid and appropriate licenses, certifications, and permits for all of their operations.

4.10.5 Bank Accounts

Neither Supplier nor a private employment agency (PEA) shall have direct control of, or access to, worker bank accounts other than to make direct deposits of compensation.

4.10.6 Fees

Supplier shall implement a comprehensive management system to monitor the fee that **contract workers** are charged to obtain a job from a PEA.

4.10.7 Contracts

Supplier's contracts with PEAs shall comply with applicable laws and regulations and the applicable terms of the Apple Code of Conduct and Supplier Responsibility Standards.

Supplier shall obtain and verify the terms of the contracts between the PEA and workers prior to receiving the workers onsite.

4.10.8 PEA Compliance

Supplier shall have a documented procedure in place to manage violations of applicable laws and regulations and this Standard by a PEA. This procedure shall define appropriate sanctions and establish a corrective action process pursuant to which the PEA's violation is remedied. Supplier shall terminate its relationship with any PEA that is unwilling to correct a violation.

4.10.9 Business Conduct

Supplier shall periodically assess its relationship with PEAs and the conduct of personnel managing the PEA relationship to ensure an ethical relationship

4.10.10 Record Keeping

Supplier shall retain all documentation and records relating to PEA management, including but not limited to pre-selection due diligence, business licenses, and audit reports.

5.0 Foreign Contract Workers

5.1 Employment Policy

Supplier shall have a written employment policy that complies with the requirements of applicable laws and regulations, and the applicable requirements of the Apple Supplier Code of Conduct and Supplier Responsibility Standards

5.2 Legal Work Permits

All foreign workers shall have valid legal work permits.

5.3 Signed Employment Contract

Supplier shall ensure that all foreign workers who are hired to work in Supplier's facility while living in another country receive, understand, and sign a written employment contract in their own language prior to departing from the **sending country**. Such employment contract shall comply with the requirements in this Standard.

Definitions

Contract worker A worker that is not employed by Supplier but is employed by a third party and works at Supplier's facility.

Sending country The country of origin (place of permanent residence) of the foreign worker.

5.4 Fees and Expenses

Supplier shall use its best efforts to ensure foreign workers are not charged any **fees** related to their employment, other than **expenses** for lodging and direct transportation from the worker’s home to the recruitment/job placement facility in the sending country, direct medical expenses, and processing in the **receiving country**.

5.5 Calculation of Fees and Expenses

Supplier shall implement a process to determine the specific amount of any fees and expenses paid by each individual foreign worker prior to commencement of work.

Supplier shall require PEAs to provide accurate receipts to each worker detailing actual **recruitment fees** paid by the worker before departure from the sending country.

Supplier shall implement a non-reprisal policy that prohibits the punishment of and/or retaliation against workers for any information provided during the job-seeking or employment process. This policy shall be communicated to all foreign workers during the interview process.

Definitions

Receiving country The country in which Supplier’s facility is located and in which the foreign worker will be employed.

Definitions

Fees and expenses

All fees and expenses associated with recruitment, placement, processing, transportation, or ongoing management of workers in both the sending country and the receiving country, and any third-party expenses and fees, including, but not limited to:

Recruitment fees

- Reservation or commitment fees
- Informal broker and sub-agent fees and expenses for assistance in recruitment (fees paid by workers to middlemen, recruiters, or persons who referred the worker to the employment agency, whether formal or informal)
- Recruitment service fees in the sending country (such as application or recommendation fees)
- Recruitment service fees in the receiving country (both one-time and recurring fees)
- Deposits

Transportation and lodging costs:

- Air or ground transportation from sending country to receiving country
- Returning air or ground transportation from receiving country to sending country
- Airport taxes

Documentation, medical, training, and other government fees:

- PEA service fees
- Passport fees
- Visa fees
- Medical exam fees
- Documentation fees in sending country (such as notarization, translation services and attorneys fees)
- Insurance
- Government-required fees

Training fees (such as PEA- or Supplier-mandated training)

Exemptions Unless required by applicable laws and regulations to be borne by the Supplier, the following shall be exempted from the fees and expenses calculation and shall be borne solely by the foreign worker:

- Direct transportation expenses incurred from worker’s home to local or central recruitment processing centers in the sending country.
- Actual cost of medical exams, passport renewal, and insurance payments in the receiving country and actual cost of work permit renewal (any administrative or service fees above the actual cost shall be included in fees and expenses).

5.6 Reimbursement of Excess Fees

If a foreign worker has paid fees and expenses related to their employment, other than the expenses described above, Supplier shall reimburse such fees and expenses to that foreign worker within 30 days of the start of the worker's employment with Supplier.

5.7 Pre-Departure Education and Training

Supplier shall implement systems and processes to ensure that foreign workers understand the terms of their employment contracts, legal rights, and protections under the Apple Supplier Code of Conduct and related Supplier Responsibility Standards prior to signing employment contracts in the sending country.

5.8 Identity Document Storage

Supplier shall provide each foreign worker with individual secure storage for their identity documents, such as passports, identity papers, travel documents, and other personal legal documents.

Storage shall be freely and immediately accessible to foreign workers at any time.

Storage shall be accessible to foreign workers without assistance and there shall be no barriers to access.

Storage shall be lockable and secured against unauthorized access.

Foreign workers may voluntarily elect to store their documents in such storage but Supplier shall not require workers to do so.

5.9 Pregnancy Protections

Supplier shall take affirmative steps to protect the rights of foreign workers who become pregnant. In cases where receiving country law requires that pregnant foreign workers return to their home country (or the sending country) to give birth, Supplier shall provide such protections to pregnant workers as per applicable laws and regulations.

5.10 Diplomatic Access

Supplier shall not prevent any foreign worker from contacting his or her embassy.

5.11 Early Termination of Contract with Reasonable Notice

Supplier shall not penalize foreign workers for voluntarily terminating their employment contracts with **reasonable notice** as defined by local laws.

5.12 Early Termination of Contract Without Reasonable Notice

Supplier shall not penalize a foreign worker more than his or her anticipated 1-month net wage for voluntarily terminating his or her employment contract early without reasonable notice.

5.13 Dismissal for Cause/Involuntary Termination

If a foreign worker is terminated for misconduct or illegality, Supplier may deduct the cost of such worker's return transportation to the sending country up to the worker's anticipated 1-month net wage.

5.14 Management Systems, Grievances, and Communication

Supplier shall establish and maintain management systems to implement and enforce its employment policies. Such management systems shall, at a minimum, identify the **responsible individual(s)**, enable workers to file anonymous grievances for violations of employment policies, and provide a means to communicate employment policies to workers and job applicants in a language they understand.

Definitions

Reasonable notice Maximum of one month prior notice, or less if required by applicable laws and regulations, for worker to voluntarily terminate contract with employer.

Responsible individual An individual designated by Supplier to manage human resource issues including but not limited to handling worker grievances and devising, implementing, communicating, and/or enforcing employment policies.

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Supplier Responsibility Standard

Prevention of Underage Labor

1.0 Purpose

This Prevention of Underage Labor Standard (“Standard”) supplements the Prevention of Underage Labor section of the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding Apple’s standards on the prevention and remediation of underage labor. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier’s facility.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall employ only workers who are at least 15 years of age or the applicable minimum legal age, whichever is higher. Supplier may provide legitimate workplace apprenticeship programs for educational benefit that are consistent with *Article 6 of ILO Minimum Age Convention No. 138 or light work consistent with Article 7 of ILO Minimum Age Convention No. 138*.

4.0 Supplier Responsibility Standards

4.1 Employment Policy

Supplier shall at all times have a written employment policy that clearly states the minimum age for **workers** and that complies with this Standard, applicable laws and regulations, the Code, and all other relevant and applicable standards. Supplier shall comply with its written employment policy at all times.

4.2 Systems to Prevent Recruitment of Underage Workers

Supplier shall implement labor-management systems in keeping with its employment policy prohibiting underage labor (underage labor policy). In addition to overall management systems for the facility (as required in the Code), Supplier’s labor management system must, at a minimum:

- Ensure that comprehensive personnel record systems are in place that include for each worker biographical and employment-related information, a copy of valid and appropriate age-verification documentation, and a means of visual identification.

- Identify the responsible individual(s) to oversee and enforce the labor-management system responsible for the prevention of **underage labor**.
- Provide comprehensive training to all recruitment staff on appropriate age documentation and verification systems.
- Outline means to communicate underage labor policy to all workers, supervisors, and managers of the facility.
- Outline anonymous methods for all workers to report existence of underage workers at the facility.
- Perform pre-selection due diligence and ongoing verification of **private employment agencies (PEAs)** and **qualified educational programs (QEPs)** recruitment and management practices to ensure compliance with applicable laws and regulations, the Apple Code of Conduct and Supplier Responsibility Standards.
- Supplier shall notify Apple if any violations by a PEA or QEP are detected and immediately seek to correct the violations and prevent future violations. If a PEA or QEP is unwilling to correct the violation, Supplier shall, as soon as is reasonably practicable, terminate the relationship with the PEA or QEP.

4.3 Age Documentation and Verification Systems

Supplier shall establish and implement appropriate age documentation and verification management systems to ensure that underage workers are not working on site, including:

- Minimum requirements for age verification documentation for employment as required by applicable local law and regulations (that is, government-recognized photographic ID). Where the law does not dictate the official documentation required, Supplier must inspect and cross-reference to verify the validity at least two of the following: Birth certificates, voting cards, or any other government-registered documents showing date of birth, or medical or dental certification verifying age.
- Robust age-verification measures, including at minimum:
 - Matching photographic ID to worker's face
 - Verification through third-party resources where available, such as Internet resources or local government offices
 - Periodic visual inspection of facility for potential underage workers

4.4 Notification and Remediation

If any **active underage worker**, **terminated underage worker**, or **historical underage worker** is found either through an external audit or self-review, Supplier shall notify Apple immediately and shall implement a remediation program as directed by Apple.

For more information about Apple's Supplier Responsibility Program, visit www.apple.com/supplier-responsibility.

Definitions

Active underage worker A worker who meets the definition of underage worker and is working at the facility at the time of the audit.

Historical underage worker A worker who is above legal minimum age and started work when he or she was under the minimum age.

Private employment agency (PEA) Private service enterprises, including sub-agents, carrying out, under contract and in exchange for financial compensation, operations on behalf of individuals or enterprises, whose role is to provide access to employment or career progression by filling employment vacancies.

Qualified educational program (QEP) A course of instruction that is at least one academic term long and leads to a certification, degree, or diploma in a career field.

Terminated underage worker A worker who meets the definition of active or historical underage worker as above and is no longer working at the facility at the time of the audit.

Underage worker Any worker under 15 years of age, the legal minimum age for employment, or the age for completing compulsory education in that country, whichever is higher.



Supplier Responsibility Standard

Juvenile Worker Protections

1.0 Purpose

This Juvenile Worker Protections Standard (“Standard”) supplements the Apple Supplier Code of Conduct (the “Code”) by providing additional clarity regarding the working conditions for juvenile workers. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier’s facility.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier may employ juveniles who are older than the applicable legal minimum age but are younger than 18 years of age, provided they do not perform work that might jeopardize their health, safety, or morals, consistent with ILO Minimum Age Convention No. 138. Supplier shall not require juvenile workers to work overtime or perform night work.

4.0 Supplier Responsibility Standards

4.1 Age Verification

Supplier shall verify **workers’** ages before employment by verifying at least one form of “proof of age.” Two forms are recommended. Supplier shall immediately return original identity documents to workers and shall maintain only a copy for personnel records. Documents that qualify as valid proof of age include:

- Birth certificate
- Government-issued personal identification card
- Driver’s license
- Voting registration card
- “Official stamped” copy of a school certificate
- Affidavit from local government representative
- Foreign national work permit

4.2 Working Hours

Supplier shall comply with all applicable laws governing work hours regulating or limiting the nature, frequency, and volume of work performed by **juvenile workers** under the age of 18.

Juvenile workers shall not work overtime.

Juvenile workers shall not conduct **night work**.

4.3 Juvenile Worker Health and Safety

To protect the health and safety of juvenile workers, Supplier shall ensure that juvenile workers do not engage in hazardous work. Supplier shall follow applicable laws and regulations related to juvenile workers but, where the law is silent, juvenile workers shall not engage in work involving any of the following:

- Exposure to hazardous environments, substances, agents, or processes potentially damaging to their health, including but not limited to:
 - Environments/conditions likely to cause heat or cold stress or injury
 - Noisy environments requiring ear protection
 - Explosives or articles containing explosive components
 - Any exposure to radioactive substances including radium, self-luminous compounds, thorium salts, and ionizing radiation in excess of 0.5 rem per year as per United States Department of Labor guidance.¹
- Operations in inherently dangerous locations, including:
 - Underground
 - Underwater
 - Heights in excess of 2 meters
 - Hazardous **confined spaces**
- Work with or near chemical processes above the applicable legal limits for juvenile workers. If no such legal limits or industry regulations exist, juvenile workers shall be exposed to no more than 50 percent of the applicable exposure limit for adults (for example, if the applicable adult standard limits exposure to 100 ppm per 8 hours, the juvenile standard shall be 50 ppm per 8 hours).
- Operations of the following equipment:
 - Power-driven hoisting apparatus
 - Any mobile power-driven apparatus without legal operator's license
 - Stamping, cutting, and laser equipment or any equipment with pinch points
- Other hazards determined to be unsafe for juveniles by Supplier's environment health and safety department or a qualified health professional.
- Other restrictions required by applicable law and regulations including but not limited to environmental and transportation-related restrictions.

Definitions

Confined space A space large enough that a worker can enter to perform assigned work, with limited or restricted means for entry or exit, that is not designed for continuous worker occupancy.

Juvenile worker A worker older than the applicable legal minimum age for employment or 15 years of age, whichever is greater, but younger than 18 years of age.

Night work Any work carried out, in whole or in part, between 10:00 p.m. and 5:00 a.m.

¹ See US Department of Labor, Employment Standards Administration, CFR, Title 29, Chapter 5, Part 570: "Occupations Particularly Hazardous for the Employment of Minors between 16 and 18 Years of Age or Detrimental to Their Health or Well-Being."

4.4 Risk Prevention

Upon introduction of a new process or hazard, Supplier shall ensure that a **qualified safety professional** reviews all operations and positions to determine and prevent the risks to juvenile workers.

4.5 Job Descriptions

Supplier shall incorporate any work restrictions for juvenile workers in written job descriptions. Except where expressly prescribed by applicable laws and regulations, such safety restrictions shall be based on determinations made by a qualified safety professional.

4.6 Data Tracking

Supplier's management systems shall include a tracking mechanism to track juvenile workers to ensure compliance to this Standard and applicable laws and regulations.

Definitions

Qualified safety professional Licensed or certified individual (either on- or off-site) with the knowledge, training, and experience necessary to review and assess a factory's production environment and any associated risks to workers.

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Supplier Responsibility Standard

Student Worker Protections

1.0 Purpose

This Student Worker Protections Standard (“Standard”) supplements the Apple Supplier Code of Conduct (the “Code”) by providing additional clarity regarding the use of student workers. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall ensure proper management of student workers through proper maintenance of student records, rigorous due diligence of educational partners, and protection of students’ rights in accordance with applicable law and regulations. Supplier shall provide appropriate support and training to all student workers.

4.0 Supplier Responsibility Standards

4.1 Juvenile Workers

If the student worker is older than the applicable legal minimum age for employment or 15 years of age (whichever is older) but younger than 18 years of age, the Juvenile Worker Protections Standard, in addition to this Standard, governs the employment of that worker.

4.2 Legal Compliance

In addition to the requirements outlined in this Standard and other applicable Apple standards, Supplier shall strictly adhere to all applicable laws and regulations regarding the employment of student workers.

4.3 Use of Private Employment Agencies (PEAs)

Supplier shall not use PEAs in connection with the recruitment, hiring, arrangement, management or employment of **student workers**.

4.4 Qualifications of Student Workers

Supplier shall ensure that the student worker is eligible for employment as a student worker under applicable laws and regulations.

Supplier shall ensure that the student worker is actively enrolled in a program of study at an **educational institution** (hereafter referred to as “school”).

Definitions

Private employment agency (PEA) Private service enterprises, including sub-agents, carrying out, under contract and in exchange for financial compensation, operations on behalf of individuals or enterprises, whose role is to provide access to employment or career progression by filling employment vacancies.

Student worker A worker, regardless of age, who is enrolled at an educational institution and employed by a Supplier for an internship, work study or any other program (“program”) that is arranged by the educational institution.

4.5 Voluntary Employment

Supplier shall ensure that all work performed by a student worker is voluntary.

Supplier shall ensure that the student worker can find alternative work opportunities to complete his or her educational program if the student worker chooses to resign.

4.6 Educational Contribution

Supplier shall ensure that the student worker's field of study is relevant to the Supplier's industry or work position.

4.7 Student Worker Agreements

4.7.1

Supplier shall have a written agreement with the student worker. This agreement must adhere to applicable laws and regulations.

4.7.2

Where required by law or regulation, the student worker's school shall be a party to the agreement between Supplier and the student worker.

4.7.3 Contract Terms

This agreement between the student worker and the Supplier, and if required by law, the student worker's school, shall stipulate, at a minimum:

- All terms required by applicable laws and regulations
- Student worker's full name
- Student worker's emergency contact information
- The name and address of the student worker's school
- The name and address of the Supplier
- Individual at the school who is responsible for the student worker
- Individual at the Supplier who is responsible for the student worker
- Work start and end dates
- Living conditions
- Wages and benefits
- Costs (if any) for meals and accommodation
- Working hours
- Nature of work and place where it will be performed
- Agreement termination/resignation procedures and terms
- Insurance coverage
- Education and training to be provided by the school
- Education and training to be provided by the Supplier

Definitions

Educational institution (referred to as "school") An institution that offers programs of at least one academic term in length that lead to a certification, degree, or diploma in a career field. (In the PRC, this includes secondary vocational school, technical school, vocational high school, full-time university, independent college, college, or vocational and technical college.)

4.7.4 Signed Student Worker Agreement

The student worker must sign this agreement prior to performing work at the Supplier's facility.

4.7.5 Receipt of Student Worker Agreement

Supplier shall ensure that the student worker understands the agreement and receives a copy of it prior to performing work at the Supplier's facility.

4.7.6 Student Worker Program Length

The program length (total accumulated time of work at Supplier facility) shall not exceed the limit regulated by applicable laws and regulations. In the absence of an applicable legal requirement, the maximum length is 1 year.

The program cannot be extended beyond the agreed end date as written in the original student worker agreement.

4.7.7 Agreement Termination

Supplier shall ensure that the student worker is free to terminate his or her internship agreement with **reasonable notice**.

The student worker shall not be required to pay any fee or fine or receive any other penalty for early termination of the student worker agreement with reasonable notice.

4.8 Working Hours

Working hours shall not conflict with the student worker's school attendance.

Supplier shall adhere to restrictions on working hours as required by local law or regulation.

4.9 Wages

The student worker shall receive at least the same wage rate as other entry-level workers performing equivalent or similar tasks.

All wages shall be paid directly to the student worker or to an account under the sole control of the student worker.

Supplier shall not delay the payment of wages to the student worker.

In areas where legal requirements differ from above, Supplier shall notify Apple and provide proof of legal compliance for review.

4.10 Deductions And Fees

Supplier shall not deduct educational fees from the student worker's wages.

Supplier shall not deduct placement fees from the student worker's wages.

4.11 Insurance Coverage

Supplier shall ensure that the student worker is insured against accident or liability.

Supplier shall ensure that the student worker is fully covered for any other forms of insurance required by law or regulation.

Definitions

Reasonable notice Maximum of one-month prior notice, or less if required by applicable laws and regulations, for a worker to voluntarily terminate the employment contract or agreement with a Supplier.

4.12 Management of Schools

- *School Pre-Selection Due Diligence* Supplier shall conduct pre-selection due diligence and ongoing audits of each school to ensure that it complies with applicable laws and regulations, the Apple Supplier Code of Conduct, and this Standard.
- *School Licenses* Supplier shall ensure that schools have appropriate and current licenses, certifications, and permits for all locations of operation.
- *School Compliance* Supplier shall have documented procedures for corrective actions to address any violations of this Standard by a school and establish sanctions as appropriate, including termination of the relationship.

4.13 School Business Conduct

Supplier shall periodically investigate and validate the relationship between the school and individuals or departments responsible for selecting or managing school relationships on behalf of the Supplier in order to ensure an ethical business relationship.

4.14 Student Worker Limit

No more than 20 percent of labor supporting the manufacturing of Apple products, packaging, parts, components, subassemblies, and materials at any given facility shall be composed of student workers at any time.

4.15 Support Services

Supplier shall designate onsite staff to guide and manage the student worker program(s). The designated staff should be in addition to any onsite teacher(s) from the student workers' school(s).

Student workers shall have access to a grievance mechanism with separate communication and response channels for student workers. Student workers shall be able to openly communicate grievances with management regarding working conditions and management practices without fear of reprisal, intimidation, or harassment.

Student workers shall have student-specific onboarding.

4.16 Record Keeping

Supplier's management systems shall include a tracking mechanism to track student workers to ensure compliance with this Standard and applicable laws and regulations.

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Supplier Responsibility Standard

Working Hours

1.0 Purpose

This Working Hours Standard (“Standard”) supplements the Working Hours section of the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding the Apple requirement of 60 hours of work per workweek and one day of rest per seven days. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

A workweek shall be restricted to 60 hours, including overtime, and workers shall take at least one day off every seven days except in emergencies or unusual situations. Regular work week shall not exceed 48 hours. Supplier shall follow all applicable laws and regulations with respect to working hours and days of rest, and all overtime must be voluntary.

4.0 Supplier Responsibility Standards

4.1 Working Hours

Except in **emergency or unusual situations**, Supplier shall limit the actual hours worked by each **worker** to no more than 60 hours per **workweek**.

4.2 Day of Rest

Except in emergency or unusual situations, workers shall have a **day of rest** at least once every 7 days. Days of work must be restricted to 6 consecutive days.

4.3 Ergonomic Breaks

Supplier shall compensate workers for breaks and include breaks as regular working hours as per applicable local and national laws and regulations.

4.4 Bathroom Breaks

Supplier shall not place any undue restrictions on toilet use in terms of time or frequency. Bathroom breaks shall contribute to working hours and shall be compensated.

Definitions

Day(s) of rest Period of 24 consecutive hours during which workers do not work.

Emergency or unusual situations

- Events or circumstances that substantially disrupt production and are out of the ordinary and out of the control of the Supplier, including earthquakes, floods, fires, national emergencies, unpredictable and prolonged loss of electrical power, and periods of prolonged political instability.
- Situations that can be reasonably predicted and thus planned for will not be considered either unusual or emergency situations, including peak production periods, machinery breakdowns, holidays, and seasonal fluctuations.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier’s facility.

Workweek A period of 7 consecutive days that is held consistent from week to week, for example, Sunday 12:01 a.m. to Saturday midnight.

4.5 Voluntary Overtime

Supplier shall ensure that all workers have the right to refuse to work overtime hours. Under no conditions shall a Supplier impose punitive measures such as salary deductions, apply coercion of any kind, denial of future opportunities for overtime, or take disciplinary action on workers for refusing overtime.

4.6 Exceptions

Workers may exceed the 60-hour workweek and/or the day of rest every 7 days requirements during emergency or unusual situations.

Supplier shall document that the emergency or unusual situation criteria has been met and make these documents available to Apple immediately upon its request.

After the emergency or unusual situation ceases, Supplier shall immediately return to compliance with the 60-hour and day of rest requirements. At the end of the emergency or unusual situation, Supplier shall immediately provide workers with a day of rest if the day of rest requirement had not been met during the emergency or unusual situation.

4.7 Work Activities

Supplier shall include the following activities in preparing **official working hour records**:

- Time on the production line, regardless of whether the line is running (“production time”) or not (“down time”).
- Mandatory meetings and trainings, including but not limited to orientation training, trainings on company policies and procedures, production planning meetings, assembly meetings, and daily wrap-up meetings. All meetings must be arranged within the regular 8-hour shift.
- Supplier shall not require workers to arrive prior to the scheduled start of a shift, even by a few minutes to prepare for work, unless this time is counted as paid working time.
- Mandatory administrative processes including the following, cumulating in greater than 15 minutes total:
 - Excessive waiting in line to punch out
 - Excessive waiting in line to clear security into/out of the production line or facility
 - Waiting for supervisor approval, for example, time card approval
- Any other process managed by Supplier that requires workers to be present at the factory or perform any production-related work regardless of location.

4.8 Worker Notification

When possible, Supplier is encouraged to notify workers at least 12 hours prior to work cancellations or reschedules from planned shift schedules.

Definitions

Official working hours records System of recordkeeping that most accurately reflects workers’ actual hours of work that may consist of multiple records including but not limited to:

- Time cards
- Overtime approval/confirmation records
- Shift schedule and production records

4.9 Policy

Supplier shall manage and have a written policy to manage working hours in a manner that satisfies the requirements of applicable laws and regulations, the Apple Supplier Code of Conduct, and applicable Supplier Responsibility Standards.

4.10 Production Planning

Supplier shall plan production schedules to meet committed production capacity, committed lead time, and the 60 hours per workweek and one day of rest per 7 days requirements.

4.11 Procedures and Implementation

Supplier shall have written procedures and systems to implement its working hours policy that identify the individual(s) responsible for administering the policy, a means to communicate the policy to workers and job applicants in a language they understand, and methods for workers to file anonymous grievances for violations of the policy.

4.12 Dispute Mechanism

Supplier shall ensure that workers have a mechanism to understand, dispute, and correct the actual hours worked as recorded in the official working hours records.

4.13 Official Working Hours Record System

Supplier shall have an official working hours record system to track working hours and days of rest for each worker. The official working hours record system shall ensure that the facility has reliable systems in place to measure actual hours of work. Supplier shall ensure that records of working hours can clearly record the workers' time in and out of the facility, in addition to actual hours worked.

4.14 Working Hour Calculations

For the purposes of pay and benefits, overtime calculations shall be based on the exact hours and minutes worked. If supplier is unable to calculate the exact minutes, the overtime hours shall be rounded to the nearest 15 minute interval as follows:

Time (minutes)	$0 < x \leq 15$	$15 < x \leq 30$	$30 < x \leq 45$	$45 < x \leq 60$
Rounded Time Allotment (minutes)	15	30	45	60

4.15 Excessive Hours Control

The official working hours records system shall be capable of identifying workers who are scheduled to exceed the 60-hour and day of rest requirements, as well as track the total work hours per week and days of rest for each worker. The system shall provide summary reports and warnings to management prior to exceeding these requirements.

4.16 Communication

Supplier shall incorporate the 60-hour limit, day of rest, and voluntary overtime requirements in written employment contracts and in worker communications such as orientation training and employee handbook.

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Supplier Responsibility Standard

Wages, Benefits and Contracts

1.0 Purpose

This Wages, Benefits and Contracts Standard (“Standard”) supplements the Wages, Benefits and Contracts section of the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding the payment of wages and benefits. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall ensure that all workers receive at least the legally mandated minimum wages and benefits. Supplier shall offer vacation time, leave periods, and time off for legally recognized holidays.

Supplier shall compensate workers for overtime hours at the legal premium rate. Supplier shall communicate pay structure and pay periods to all workers. Supplier shall pay accurate wages in a timely manner, and wage deductions shall not be used as a disciplinary measure. All use of temporary and outsourced labor will be within the limits of the local law.

4.0 Supplier Responsibility Standards

4.1 Minimum Pay

All workers shall be paid no less than the **minimum wage** for all **regular hours** as per applicable laws and regulations. A worker’s **base wage** shall always be set at or above minimum wage for the **classification of worker**.

4.2 Overtime

All **overtime hours** must be paid at the appropriate overtime rate applied to appropriate base wage as per applicable laws and regulations or employment contract, whichever is higher, for the relevant classification of worker.

4.3 Protections and Restrictions

Supplier shall abide by all protections and restrictions for all workers according to their classification as per applicable law and regulations.

Definitions

Base wage The minimum amount of wages per hour/week/month the worker is entitled to receive for regular hours worked per applicable law or contract agreement, whichever is higher. May include allowances such as for food and housing, unless prohibited by law. These exclude overtime pay, discretionary pay, and bonuses. Base wage may be higher than minimum wage, but cannot be lower.

Benefit(s) Compensation in addition to base wages and overtime pay, including but not limited to holiday leave, vacation leave, contingency leave (such as maternity and sick leave), retirement and social security/insurance benefits, and so forth.

Classification of worker Status of worker including full time, part time, student, probationary, temporary, or other, based on applicable laws and regulations.

Minimum wage Legally mandated minimum pay per hour/week/month. Excludes allowances, overtime pay, discretionary pay, and bonuses.

Overtime hours Amount of time worked beyond regular hours.

Regular hours Normal hours worked as determined by applicable laws and regulations, or in the absence of such laws, as defined by contractual agreement between Supplier (or its agent(s)) and workers or their representatives.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier’s facility.

4.4 Benefits

Supplier shall provide **mandatory benefits** to the classification of worker as per applicable laws and regulations.

Where applicable under law, Supplier shall provide workers with paid and unpaid leave, and public holidays.

4.5 Waivers

Waivers affecting working hours or worker wages and benefits, even those promulgated by local authorities or government agencies, will not be accepted (for example, the Comprehensive Working Hours System in China).

4.6 Payment

Supplier shall be required to make monetary payments under all circumstances where workers have not been paid their due. This includes but is not limited to:

- Underpayment: If Supplier becomes aware of any underpayment, Supplier shall repay the amount due to worker(s).
- Exit payment: Irrespective of the conditions under which the employment relationship has ended, all workers must receive their wages due. This must be accompanied by an explanation of any deductions and final wages earned.
- Deductions not specified by law: deductions made for deposits, fees, uniform charges, disciplinary fines, tools, etc.
- Non-payment of statutory benefits such as overtime wages, annual leave, and paid public holidays.

4.7 Pay Structure

The pay structure shall not require workers to work more than the legally mandated regular hours (whether calculated on an hourly, daily, weekly, or monthly basis) in order to earn the base wage.

4.8 Deductions

Supplier or its agents shall not deduct earnings from workers' paychecks except where required by applicable law and regulations, for example, taxes and social insurance, or where Supplier or its agent is providing a service. If deductions are made as part of a service provided to workers, workers shall have the choice to opt out of any such service.

4.9 Loans

Personal loans to workers or job seekers under circumstances where repayment terms could be construed as debt bondage or forced labor are prohibited.

4.10 Deposits

Deposits from workers are prohibited unless required by applicable laws and regulations. If a deposit is legally required, Supplier shall ensure that a receipt is provided for any deposits made by workers and that such deposits shall be returned in full to the worker as expeditiously as practicable, but no later than one month after the worker's employment has terminated or reason for such deposit has ended, whichever is earlier.

Definitions

Mandatory benefits Benefits that Supplier is required to provide to workers a per applicable laws and regulations and/or employment contract.

4.11 Charges

Supplier shall not charge workers for:

- Required personal protective equipment
- Uniforms, except for unreturned uniforms

4.12 Monetary Penalties

Monetary penalties deducted from wages or reductions in mandatory benefits as disciplinary measures are prohibited.

4.13 Taxes

Supplier shall pay all required employer-paid taxes and other payments to relevant government agencies as per applicable laws and regulations.

4.14 Record Maintenance

Supplier shall ensure that all legally required payroll documents, journals, and reports are available, complete, accurate, and up to date.

4.15 Pay Schedule

Supplier shall pay workers within the deadline defined by applicable law and regulations; in the absence of such guidance, Supplier shall pay workers within 30 days of the end of the **working period**. Pay adjustments in the case of discrepancies in records must be paid within 30 days of the end of the working period.

4.16 Bank Accounts

Neither Supplier nor a **private employment agency (PEA)** shall have direct control of, or access to, worker bank accounts other than to make direct deposits of compensation.

4.17 Recruitment

At the time of recruitment, Supplier shall ensure that workers are provided in writing, in a language that they understand, accurate details of nature and place of work, living conditions, the term of contract (if applicable), working hours, base wages for regular hours, rates for overtime and holiday wages, and applicable deductions and benefits.

Definitions

Monetary penalties Includes cash fines, pay deductions or account withdrawals. Does not include non-payment for actual time not worked due to late arrival or missed work time.

Private employment agency (PEA) Private service enterprises, including sub-agents, carrying out, under contract and in exchange for financial compensation, operations on behalf of individuals or enterprises, whose role is to provide access to employment or career progression by filling employment vacancies.

Working period The period of work upon which the standard paycheck is based.

4.18 Signed Contract

Workers shall sign a written employment contract prior to performing any work at a Supplier's facility.

Supplier shall ensure that the employment contract is written in a language that the worker understands.

This contract shall adhere to applicable laws and regulations and all relevant terms outlined in the Apple Code of Conduct and Supplier Responsibility Standards.

Supplier shall ensure that all workers receive and understand a copy of this contract, signed by the Supplier, at the time of the worker's signature.

At a minimum, this contract must contain:

- All employment terms required by applicable laws and regulations
- Worker's full name and date of birth
- Worker's passport number, ID card, or equivalent identification
- Emergency contact information
- The nature of work and place where it will be performed
- Living conditions
- Costs (if any) for meals and accommodation
- Descriptions and quantitative estimates of each line item to be deducted from wages
- The term of contract (if applicable)
- Expected regular working hours, overtime hours, frequency of rest days, and holidays
- Base wages for regular hours
- Clearly defined regular, overtime, and holiday wage rates, including maximum allowable overtime hours
- Deductions (if any)
- Benefits
- All applicable bonuses and allowances
- Date of eligibility for reimbursement of deposit, in accordance with the terms outlined above
- Contract termination/resignation procedures and terms
- Terms and conditions for contract renewal
- No terms that deny a worker the right to organize or engage in collective bargaining

4.19 Revised/Supplemental Contracts

Supplier shall ensure that any revisions to employment contracts shall include all the terms outlined in this Standard and that any revisions or subsequent contracts guarantee terms at least as favorable to the worker as outlined in original employment contract or as negotiated through collective bargaining.

4.20 Contract Termination

Supplier shall ensure that workers are free to terminate their employment contract with **reasonable notice**.

4.21 Identity Documents

Workers shall retain possession or control of all original identity documents such as passports, identity papers, travel documents, and other personal legal documents. Supplier shall not require surrender of original identity documents, withhold identity documents, or restrict workers' access to them for any reason.

4.22 Communication of Wage Calculation

Supplier shall communicate, in writing, to all workers in a language they understand, the method by which wages, benefits, and deductions are calculated.

4.23 Communication of Wages

Supplier shall ensure that each payment to a Worker is accompanied by a clear statement communicating:

- The amount of regular hours and overtime hours worked
- The appropriate rate of pay for regular hours, overtime hours, and holiday hours
- An account and definition of each deduction made
- An account and definition of each benefit payment made

4.24 Training and Education

Supplier shall provide workers with proper training regarding occupational safety and health related to performing their duty and work.

4.25 Probation

Where probationary or training employment is legally allowed, Supplier shall ensure that workers are paid at least minimum wages. No workers shall work more than 3 months cumulatively in those employment categories.

4.26 Dispute Mechanism

Workers shall have a formal mechanism by which to dispute wages and benefits.

4.27 Third Parties

Supplier shall ensure that any third party used in recruitment, processing, placement, employment, or management of **contract workers** adheres to the terms in this Standard. Periodically, Supplier shall make efforts to ascertain that contract workers are being compensated as per the agreed contracts.

Definitions

Contract worker A worker employed by a third party on behalf of Supplier.

Reasonable notice Maximum of one month prior notice, or less if required by applicable law and regulations, for worker to voluntarily terminate contract with the employer.

For more information about Apple's Supplier Responsibility Program, visit www.apple.com/supplier-responsibility.



Supplier Responsibility Standard

Freedom of Association and Collective Bargaining

1.0 Purpose

This Freedom of Association and Collective Bargaining Standard (“Standard”) supplements the Freedom of Association section of Apple’s Supplier Code of Conduct (the “Code”). Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall freely allow workers to associate with others, form, and join (or refrain from joining) organizations of their choice, and bargain collectively, without interference, discrimination, retaliation, or harassment. In the absence of formal representation, Supplier shall ensure that workers have a mechanism to report grievances and that facilitates open communication between management and workers.

Definitions

Grievances Grievances and communication may include but are not and should not be limited to instances of harassment and abuse, discrimination, retaliation, non-payment of wages, requests for discussions regarding hours and wages, food preferences, living conditions requests, and so forth.

4.0 Supplier Responsibility Standards

4.1 Freedom of Association

Policy and Procedures

Supplier shall draft a written policy on freedom of association. In addition, Supplier shall have procedures and systems to implement its freedom of association policy in a manner that satisfies the requirements of applicable laws and regulations, Apple's Supplier Code of Conduct, and Supplier Responsibility Standards.

Supplier shall respect **workers'** lawful rights to form or participate (or refrain from forming or participating) in organizations of their choosing, including but not limited to unions, worker committees, or other worker associations, and bargain collectively without interference, discrimination, retaliation, or harassment. Supplier shall accommodate workers should they express a desire for a **grievance** mechanism in addition to formal representation.

Where country law substantially restricts freedom of association, Supplier shall allow alternative means for workers to individually and collectively engage with Supplier, including processes for workers to express their grievances and protect their rights regarding working conditions and terms of employment.

Neutrality

Supplier is not required to take an active role in supporting workers' efforts to associate or organize, but employers must ensure that workers can exercise their right to organize in a climate free of violence, pressure, fear, and threats.

Deductions

Supplier shall not deduct union membership fees or any other union fees from workers' wages without the express and written consent of individual workers, unless specified otherwise in freely negotiated and valid collective bargaining agreements.

4.2 Worker Representation

Subject to national laws, Supplier shall not interfere with the formation or operations of workers organizations, including acts that are designed to establish or promote the domination, financing, or control of such organizations.

Supplier shall not interfere with the right of workers to draw up their constitutions and rules, to freely select their representatives, to organize their administration and activities, and to formulate their programs.

Worker representatives shall have access to their members under conditions established by applicable law and regulation or mutual agreement between the Supplier and the **worker organization**. Worker representatives shall have the facilities necessary for the proper exercise of their functions.

Workers are free to meet and discuss workplace issues in the factory during their breaks and before and after work.

Definitions

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier's facility.

Worker organization Any organization of any kind in which workers participate and which exists for the purpose, in whole or in part, for furthering and defending the interests of workers.

Worker representative A worker-representative shall not include management, or low-level supervisors. Some exceptions may apply if specifically agreed to by workers and management.

4.3 Non-Harassment and Non-Retaliation

No worker or prospective worker shall be subject to dismissal, discrimination, harassment, **blacklisting**, intimidation, retaliation, or other **employment decision** for reason of:

- Membership and/or participation in a union, worker association, or other freedom of association activities
- Exercising lawful right to form a union or participating in collective bargaining efforts
- Organizing or participating in a legal strike or demonstration
- Raising issues to **management** concerning compliance with a collective bargaining agreement or any other legal requirements.

Supplier shall not threaten or use violence or the presence of police or military to intimidate employees or to prevent, disrupt, or break up any activities that constitute a lawful and peaceful exercise of the right of freedom of association, including union meetings, organizing activities, assemblies, and lawful strikes.

Supplier shall not transfer, demote, promote, outsource, or reassign workers as a means to discourage unionization or participation in worker-management communication activities.

Supplier management shall not impede workers' right to peaceful organization by outsourcing work performed by union members. Shifting production from one site to another for the purpose of retaliating against workers who have formed or are attempting to form a union is not acceptable.

4.4 Collective Bargaining Agreements

Where a collective bargaining agreement exists, Supplier shall bargain in **good faith**.

Supplier shall honor, in good faith, the terms of any signed collective bargaining agreement for the duration of that agreement.

Where a collective bargaining agreement exists, workers covered by the agreement shall receive copies of the signed agreement.

Where the right to freedom of association and collective bargaining is restricted under law, Supplier shall not obstruct alternative legal means of workers to associate and bargain collectively.

Definitions

Blacklisting Creating, maintaining, using, and/or communicating lists of employees or potential employees for the purpose of denying employment or other penalty based on legally protected status or non job-related criteria, such as political affiliation or trade union status.

Employment decision Hiring, termination, job security, job assignment, compensation, promotion, downgrading, transfer, (vocational) training, discipline, assignment of worker, and conditions of worker including hours of work, rest periods, and occupational and safety and health measures.

Good faith Collective bargaining in good faith implies recognizing representative organizations, endeavoring to reach an agreement, engaging in genuine and constructive negotiations, avoiding unjustified delays in negotiation, and mutually respecting the commitments entered into, taking into account the results of negotiations in good faith. This includes the overall desire to achieve mutually beneficial results and the obligation of all parties to act reasonably and lawfully.

Management Any individual having authority, in the interest of Supplier, to hire, transfer, suspend, lay off, promote, discharge, assign, reward, discipline or direct employees, or recommend such action.

4.5 Grievance Processes

Supplier shall implement effective and accessible grievance processes for all workers. Grievance processes shall be documented and, at a minimum, comprise:

- Step-by-step processes by which complaints are reported, processed, and investigated.
- An appeal procedure by which any party that is not satisfied with the resolution may appeal the result of the investigation.
- Multiple channels for workers to raise concerns and provide input to management, including the ability, subject to applicable law, to raise concerns confidentially and anonymously without fear of retaliation.
- Identification, development, and implementation of plans to respond to broader/systemic issues raised by workers through the grievance process coupled with metrics-based evaluation of the effectiveness of improvements undertaken.

Supplier shall maintain a grievance record system including but not limited to tracking the types and number of grievances, channels through which a grievance was reported, investigation reports including names and titles of persons involved in the investigation process, associated resolutions and appeals, feedback provided to workers regarding resolutions, and improvements undertaken.

4.6 Training and Communication

Supplier shall have a process to communicate the requirements with respect to this Standard to workers, supervisors, and management.

Supplier shall have documented processes by which to have a dialogue with workers about concerns and address collective actions by workers.

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Supplier Responsibility Standard

Emergency Prevention, Preparedness and Response

1.0 Purpose

This Emergency Response Standard (“Standard”) addresses safety and health protections and supplements the Health and Safety section of the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding emergency prevention, preparedness, and response. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

C-TPAT Customs-Trade Partnership Against Terrorism.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall identify and assess potential emergency situations. For each situation, Supplier shall develop and implement emergency plans and response procedures that minimize harm to life, environment, and property.

To the extent that Supplier transports goods for Apple into the United States, Supplier shall comply with the **C-TPAT** (Customs-Trade Partnership Against Terrorism) security procedures on the U.S. Customs website at www.cbp.gov (or other website established for such purpose by the U.S. government).

4.0 Supplier Responsibility Standards

4.1 Emergency Prevention

Emergency Scenario Supplier shall identify and evaluate the likelihood of different types of emergencies based on its production processes, chemical consumption, utility operation, and local geographic and meteorological conditions. Emergency scenarios include fire, flood, chemical spillage, machine breakdown, power outage, and natural disasters.

Emergency Response Plan Based on the potential emergency scenarios, Supplier shall develop written emergency response plans to address foreseeable emergencies.

Emergency Procedures Supplier shall follow the procedures defined in its emergency response plan when emergency situation occurs. The basic elements of an appropriate plan are as follows:

- *Emergency Response Team* Supplier shall organize and assign trained **workers** to form an emergency response team (ERT) at each facility that shall be available during all working shifts. The ERT shall have the obligation and authority to direct the Supplier's response to emergencies to ensure the protection of worker health and safety, the environment, and property.
- *Communication* Supplier shall have reliable and effective mechanisms of internal and external communication for notification of emergencies and subsequent evacuation of all persons in the facility. The communication mechanisms shall be audible throughout the entire facility. Supplier shall also develop and maintain the capability to inform the surrounding community, the public, the authorities, and appropriate government agencies in all emergency scenarios, such as release of toxins into the environment or chemical spillage.
- *Evacuation and Assembly* Supplier shall immediately evacuate its facility in an emergency situation where the health and safety of the workers may be threatened. Evacuations shall be conducted under the guidance of designated trained personnel who shall direct workers to clearly marked safe **assembly areas**. Workers shall not return to previously unsafe areas unless and until the emergency situation is resolved and the facility is declared safe by the appropriate authorities and/or other trained and authorized personnel.

Definitions

Assembly area Pre-determined and communicated locations at which workers and visitors will gather in the case of a building evacuation.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier's facility.

4.2 Emergency Preparedness Facility Requirements

- *Permits* Supplier shall acquire a valid fire permit and other required permits as per local regulations.
- *Aisles* Aisles between process lines shall be clearly marked, unobstructed, and made from non-slippery material. Width of the aisles shall be maintained as per legal requirements.
- *Emergency Exits and Exit Signs* Supplier shall allocate sufficient emergency exits in buildings, according to the building size and number of occupants, in compliance with all applicable laws. Emergency exit doors must not be blocked, obstructed, or locked at any time when workers are present in the facility, must open outward, and must clearly be marked with an “Exit” sign in the local language.
 - Supplier shall ensure that emergency exits and exit signs are visible in the dark and during power outages, either by self-illumination, battery power, or backup electricity from the facility.
 - Evacuated workers should safely assemble at a reasonable distance from emergency exits so as not to interfere with the safe evacuation of the buildings in the event of an emergency.
- *Evacuation Map* Supplier shall post an accurate and up-to-date evacuation map in all process areas, meeting rooms, dining and living areas, and other public areas. The evacuation map shall be clearly marked in the local language with viewer’s position and nearest exit routes.
- *Assembly Area* Supplier shall designate a clearly marked, unobstructed, open space for assembly of workers during emergency situations.
- *Elevator* Supplier shall post signs in the local language on all elevators to prevent usage during emergencies, unless the elevator is designed for firefighting or other emergency use.

4.3 Emergency Equipment

- *Emergency Lighting* Supplier shall provide adequate, functional emergency lighting in stairs, aisles, corridors, ramps, and passageways leading to exits, and in other areas as required by applicable laws. Emergency lighting may be powered by either battery or backup generator.
- *Firefighting Equipment* Supplier shall install and properly maintain all legally mandated or recommended equipment such as fire alarms to detect and notify, monitor, and suppress fires. All emergency equipment shall be maintained and tested at regular intervals, and Supplier shall maintain records of such testing, maintenance, and proper working order. Asbestos-containing fire-suppression materials—for example, blankets—are prohibited.
- *Shutdown Devices* Supplier shall install manual or automatic shutdown devices on any hazardous production equipment to avoid injury or damage in an emergency.

- *Chemical Spillage Equipment* Supplier shall install equipment to detect, notify the facility, and respond in the event of a chemical-related emergency. Such equipment shall include the following:
 - Hazardous chemical–vapor detectors
 - Sound/light alarms as per applicable laws and regulations
 - Eye wash, emergency shower
 - Spill kits
- *First Aid Equipment* Supplier shall ensure that an adequate supply of appropriate medical equipment is available throughout the facility, well maintained, and easily accessible to all workers. A sufficient number of workers shall be trained in **first aid**.

Definitions

First aid Emergency care and treatment of an injured or ill person before complete medical and surgical treatment can be secured.

4.4 Inspection and Maintenance of Emergency Equipment

Supplier shall ensure that all emergency equipment is periodically tested as per manufacturers’ instruction or recommendations, and that malfunctioning/ nonfunctional equipment is identified and repaired. All inspections must be carried out at least annually or as otherwise required by applicable law, and records of such inspections and maintenance must be maintained and made available to Apple for review upon its request.

4.5 Emergency Contacts

Supplier shall assign emergency contacts in each work unit and for all shifts to enable internal communication in emergencies. Contact information for internal and external emergency responders/agencies shall be posted in the local language in public areas that are easily accessible to workers.

4.6 Training

Supplier shall provide emergency response plan training to all workers. All workers must be informed of changes in company policy or procedures related to emergency preparedness within 30 days of implementation. Training shall be delivered at least annually to all relevant/designated persons.

Supplier shall provide information to vendors, contractors, and other temporary visitors about the evacuation routes, assembly areas, and emergency contacts and procedures.

4.7 Evacuation Drill

Supplier shall conduct semiannual evacuation drills, covering workers in all shifts, and evaluate workers’ emergency evacuation performance. Records of all evacuation drills shall be maintained and should detail evacuation speed, number of workers participating, and potential improvements.

4.8 Post-Emergency Recovery

- *Reporting and Root Cause Investigation* Supplier shall investigate or support the investigation by proper authorities, of the cause(s) of any emergencies resulting from human error, equipment malfunction or other causes. Records of investigations to determine the root cause(s) of emergency situations must be maintained, and Supplier shall inform workers of the means to avoid similar incidents in the future.
- *Reporting to Apple* Supplier shall report any fatality or any accident requiring hospitalization to Apple within 24 hours of the incident. Report shall include but is not limited to:
 - Location of facility and accident
 - Time of accident
 - Site description
 - Accident description
 - Number of injured, dead, and/or missing
 - Control measures and remedial actions
- *Decontamination and Clean-up* In the event of chemical spillage, toxic release, or contamination, refer to the Apple Environmental Standards (Air Emissions Management, Boundary Noise Management, Stormwater Management, Wastewater Management, and Hazardous Waste Management) for handling and disposition of wastes generated from emergency situations.
- *Medical Surveillance* Supplier shall provide post-emergency medical surveillance as per applicable legal requirements and the workers' needs as diagnosed by a specialized medical practitioner. Supplier shall cover the cost of medical treatment, follow-up medical surveillance, and rehabilitation for workers injured at any Supplier facility.

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Supplier Responsibility Standard

Ergonomic Hazard Protections

1.0 Purpose

This Ergonomic Hazard Protections Standard (“Standard”) supplements the Apple Supplier Code of Conduct (the “Code”) by providing additional clarity regarding the protection of workers from ergonomic hazards. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall identify, evaluate, and control worker exposure to tasks that pose ergonomic risk such as excessive force, improper lifting positions, or repetitiveness. Supplier shall integrate this process into the qualification of all new or modified production lines, equipment, tools, and workstations.

4.0 Supplier Responsibility Standards

4.1 Ergonomics Improvement Process

Supplier shall implement a documented process to identify, evaluate, and control workplace **ergonomic hazards**.

Ergonomic risk assessments shall be:

- Conducted on all new or modified production lines, equipment, tools, and workstations prior to being put into production.
- Integrated into the qualification process for all new or modified production lines, equipment, tools, and workstations setups.

Ergonomic risk assessments shall include:

- Identification of jobs and tasks with potential ergonomic hazards. Supplier shall have a documented process for identifying tasks with potential ergonomic hazards; inputs may include but are not limited to task observation, worker/supervisor feedback, and worker surveys.

Definitions

Ergonomic hazard A workplace condition or activity that poses a risk of biomechanical or cognitive/psychological injury to a worker.

Sources of risk for biomechanical injury include but are not limited to:

- Improper workstation layout, work methods, or tools.
- Excessive force required, improper lifting positions, excessive vibration, body posture, repetitiveness of tasks, workflow, line speed, and work/rest regimens.
- Individually or in combination, these risk factors may result in musculoskeletal injuries.
- Stressors of a cognitive or psychological nature include but are not limited to:

Highly demanding visual tasks, controls, and instruments that are difficult to read or understand, job demand or pace, job control, and social stressors.

Individually or in combination, these risk factors may result in production errors, eyestrain, or accidents.

4.2 Evaluation of Potential Ergonomic Hazards

Documented **ergonomic task analyses** shall be conducted on all jobs and tasks with identified potential ergonomic hazards. Ergonomic task analyses shall include but are not limited to documentation of risk regarding:

- Impact on muscles and joints (such as fingers/hand/wrist, arms/shoulder, neck, back, legs, feet) including dynamic movements, static postures, force, and twisting
- Contact pressure (such as fingers, palm, and forearms)
- Vibration (such as arms, full body)
- Control of operating speed
- Repetition
- Illumination
- Lifting
- Noise
- Temperature
- Work duration

4.3 Implementation of Controls to Reduce Ergonomic Hazards

Supplier shall implement controls to reduce ergonomic hazards and shall document implementation through elimination or reduction of the ergonomic hazard(s). These jobs and tasks shall be re-assessed prior to starting production with an ergonomic task analysis to ensure reduction or elimination of ergonomic hazards.

4.4 Ongoing Measurement

Supplier shall monitor the effectiveness of ergonomic control strategies using:

- Periodic ergonomic task analyses
- Key performance indicators that include but are not limited to **worker** discomfort survey data, worker/supervisor feedback, job-specific turnover rates, and job-specific defect rates.

4.5. Training

All workers and supervisors shall be trained to understand workplace ergonomic hazard risk factors and proper working posture. Each worker's training shall include instruction on how to perform his or her specific job in a manner that minimizes risk of ergonomic hazards. Workers' use of risk-minimizing postures and movements shall be reinforced on an ongoing basis.

4.6 Participatory Ergonomics

Supplier shall implement a process by which workers' suggestions for reduction of ergonomic hazards are gathered and evaluated on an ongoing basis.

Supplier shall encourage workers to report symptoms of ergonomic injuries and shall use symptom information to evaluate jobs for ergonomic hazard reduction.

Definitions

Ergonomic task analysis A process of observation and documentation that identifies and evaluates ergonomic hazards in a particular job or operation.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier's facility.

4.7 Administrative Controls

When ergonomic risks cannot be sufficiently reduced through task or workstation design, Supplier shall use administrative controls, such as rotation between jobs that have different ergonomic hazard risk profiles, to minimize workers' ergonomic risk.

4.8 Foundational Controls

The following represent a basic listing of controls required to minimize ergonomic hazards. Supplier shall install, implement, and use the controls in this section to reduce and eliminate workplace ergonomic hazards. Ergonomic risk analyses for new or modified production lines, equipment, tools, or workstations may detect ergonomic hazards that require additional controls above and beyond those below to sufficiently reduce the ergonomic hazard risk to workers:

4.8.1 Workstations

Workstations shall be adjustable such that the **workpiece** may be positioned at an appropriate height relative to each individual worker by way of height-adjustable chairs, height-adjustable work surfaces, height-adjustable fixtures, inserts, and/or other designs. Supplier shall install workstations such that:

- Each worker's upper arms are not raised above the heart.
- Each worker's shoulders are not elevated and upper arms are not abducted (with the elbow raised outward from the sides of the body).
- Each worker's back and neck are inclined at less than 20 percent forward from vertical while working.
- Workers are not required to twist or turn their backs sideways and there is minimal turning of the neck.
- Workpieces for precision and inspection tasks are located 5 cm to 15 cm above each worker's elbow height.
- Workpieces for light work tasks are located 0 cm to 15 cm above each worker's elbow height.
- Workpieces for tasks that require more than 2.2 kg of force or lifting more than 15 kg are located 5 cm to 20 cm below each worker's elbow height.

4.8.2 Seated Workstations

- *Rotation* All seated workstations in which the work conducted spans an arc of more than a 30 degrees (+/- 15 degrees measured from the midline of the worker's body) shall be provided chairs that rotate.
- *Leg Clearance* All seated workstations shall be designed with a minimum of 38 cm of open space below the work surface measured horizontally from the front edge of the work surface. Adequate vertical clearance shall be provided under the work surface for the worker's thighs. If a rotating chair is used, these clearances shall be ensured throughout the entire range of each worker's rotational motion.
- *Back Support* All seated workstations shall use seats that provide lumbar support at no more than 10 degrees from the vertical.
- *Foot Supports* Workers' feet shall be supported (not hanging) on the floor or footrest or by a support bar on the workstation while conducting work.

Definitions

Workpiece The material or product on which a worker directly and actively works.

4.8.3 Standing Workstations

Fatigue Reduction To reduce stress on the feet, legs, and lower back caused by prolonged standing, standing workstations shall be provided with a height-adjustable stool (to allow choice of sitting or standing) or ergonomic (anti-fatigue) mats or ergonomic footwear.

Foot Clearance All standing workstations shall be designed with a minimum of 12.7 cm of open space measured horizontally from the front edge of the work surface.

Foot Support To allow a worker to change the distribution of their weight in an effort to reduce stress on the feet and legs, all standing workstations shall incorporate a foot-rail at a height of approximately 15 cm.

4.8.4 Work Surfaces and Width

- Where workers rest their arms, wrists, or hands on the work surface to perform their jobs, the edges of the work surface shall be rounded and both the edge and work surface itself shall be padded to minimize contact stresses. These considerations shall also be considered in the design of fixtures and test equipment.
- Work surfaces shall be non-reflective.
- A minimum of 70 cm of width shall be provided for each worker at each workstation to allow the worker to move his or her arms freely.

4.8.5 Hand Tools

- Workers shall be provided with ergonomically designed hand tools to minimize stresses and vibrations on the fingers, palms, wrists, and arms.

4.8.6 Placement

Parts and Tools Parts and tools shall be located in front of the worker in a manner that allows for easy pickup and minimizes twisting and bending. Workers should not need to reach above shoulder level.

Visual Displays Workstations that require the use of screens shall be designed such that the display is positioned in front of and perpendicular to each worker's eyes. The top of the display should be at or slightly below the worker's eye level. Any displayed text shall be easily legible.

4.8.7 Lighting

Workstations that conduct fine work shall be provided a minimum of 500 lux of illumination at the point where work is conducted; localized task lighting is recommended.

In the case of extraordinarily fine precision and inspection tasks or difficult-to-view operations, lighted magnifiers or video inspection systems shall be used to eliminate excessive bending of the neck and back.

4.8.8 Storage Racks

Shelves on fixed and rolling racks should be situated between knee and chest height to minimize bending and reaching.

4.8.9 Manual Handling Tasks

Tasks shall not require lifting, pushing, pulling, or carrying materials that involve:

- Holding of loads away from the worker's trunk
- Twisting, stooping, or reaching upward
- Large vertical movements
- Long carrying distances
- Strenuous pushing or pulling
- Insufficient rest or recovery
- Heavy, bulky, unwieldy, difficult to grasp, unstable, unpredictable, or intrinsically harmful (such as sharp or hot) loads

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Supplier Responsibility Standard

Chemical Hazard Management

1.0 Purpose

This Chemical Hazard Management Standard (“Standard”) addresses safety and health as well as environmental protections and supplements the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding control of chemical hazards. For the purposes of this Standard, Apple’s Suppliers whose operations include the use of hazardous chemicals must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Hazardous chemical(s) Solids, liquids, or gases that can harm people, other living organisms, property, or the environment if not properly controlled during manufacture, use, storage, disposal, or transportation.

2.0 Scope

This Standard applies to all Apple Suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirement

Occupational Health, Safety, and Hazard Prevention

Supplier shall identify, evaluate, and manage occupational health and safety hazards through a prioritized process of hazard elimination, engineering controls, and/or administrative controls. Supplier shall provide workers with job-related, appropriately maintained personal protective equipment and instruction on its proper use.

Hazardous Substance Management and Restriction

Supplier shall implement a systematic approach to identify, manage, reduce, and responsibly dispose of or recycle hazardous substances. Supplier shall comply with Apple’s Regulated Substances Specification for all goods it manufactures for and provides to Apple.

4.0 Supplier Responsibility Standards

4.1 Permits

Supplier shall procure, retain, and manage current copies of all necessary **hazardous chemical** permits, licenses, registrations, and regulatory approvals as required by applicable regulatory requirements.

4.2 Identification of Hazardous Chemicals

Supplier shall establish and implement a written program to track, review, and approve the use of all hazardous chemicals and shall obtain Environmental, Health, and Safety (EHS) approvals for all new purchases of hazardous chemicals prior to use. Supplier shall maintain accurate chemical inventory records.

Supplier shall ensure that its selection processes for all new hazardous chemicals include a thorough evaluation of non-hazardous alternatives.

4.3 Chemical Inventory

Supplier shall develop and maintain an up-to-date written **chemical** inventory detailing new hazardous chemicals introduced to the facility.

Supplier shall ensure that the hazardous chemical inventory includes but is not limited to, the chemical identification (name, Chemical Abstract Service (CAS) number), location where used and stored, quantities of the hazardous chemical used, and maximum legally allowable storage limits (where applicable).

Supplier shall review the hazardous chemical inventory annually and update it to reflect process, formula, material, and product changes.

Supplier shall identify the chemicals that are banned or restricted in accordance with Apple's Regulated Substances Specification.

4.4 Chemical Hazard Communication

Supplier shall communicate the risks of hazardous chemicals and subsequent control mechanisms to mitigate those risks to **workers**. Control mechanisms include but are not limited to engineering, administrative, and personal protective equipment (PPE) controls.

The **Material Safety Data Sheet (MSDS)** or the **Safety Data Sheet (SDS)** of the hazardous chemicals used in the facility shall be written in the native language and readily accessible to workers in the areas where the hazardous chemicals are used.

All hazardous chemical containers and chemical process tanks in the workplace must contain label(s) stating the name of the hazardous chemical therein and any health, safety, and/or environmental warnings provided in the MSDS or SDS.

All chemical-transporting pipelines in the workplace must have labels stating the name and flow direction of any hazardous chemicals being transported. Pipelines shall use the proper color scheme as per applicable standards or regulations; however if no standard exists, in accordance with *ANSI/ASME A13.1 Scheme for the Identification of Piping Systems*.

Chemical containers are required to be labeled as per applicable laws and regulations. If no applicable laws and regulations exist, labeling shall be as per the Chemical Hazard Guidelines (the Guidelines) that accompany this Standard. Small containers (less than 100 ml or grams) may be exempt from this requirement but still require labels stating name and key hazard information.

Definitions

Chemical Hazardous and non-hazardous chemicals, aerosols, and particulates in solid, liquid, vapor, or gas form.

Material Safety Data Sheet (MSDS) Formal document containing important information about the characteristics and actual or potential hazards of a substance. It identifies the manufacturer of the material and usually includes (1) chemical identity, (2) hazardous ingredients, (3) physical and chemical properties, (4) fire and explosion data, (5) reactivity data, (6) health hazards data, (7) exposure limits data, (8) precautions for safe storage and handling, (9) need for protective gear, and (10) spill control, cleanup, and disposal procedures.

Safety Data Sheet (SDS) The European version of the MSDS that meets international requirements.

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at a Supplier's facility.

4.5 Hazardous Chemical Handling

Hazardous chemicals shall be handled in accordance with the requirements of the International Fire Code (IFC) as published by the International Code Council, or applicable standards, laws, and regulations.

The use or handling of hazardous chemicals shall not take place in any area where it may present an immediate danger to health or the environment due to spillage, fire, or reactivity.

Storage of hazardous chemicals (refer to the Guidelines).

Bulk/Tank Storage:

- If **underground storage tanks (USTs)** or **aboveground storage tanks (ASTs)** are used to store liquid hazardous chemicals, Supplier shall compile and maintain a register of all its USTs and ASTs. Hazardous chemical storage tank design shall meet the criteria in the Guidelines.
- Supplier shall install **secondary containment** for USTs and perform tank integrity tests at least biennially to detect failures of the primary or secondary containment structures or leakage into the secondary containment system. Supplier shall have a system to detect leakage at an early stage by visual inspection, meter monitoring, or other measures.
- Supplier shall conduct regular visual inspections for all secondary containment areas and ASTs (including tankage).

Hazardous chemicals shall be transported between work areas in the original shipping container except when transferred to smaller compatible containers for transport that are labeled appropriately (see section 4.4).

Workers are required to use an appropriate device when transporting large or multiple containers of hazardous chemicals. For detailed requirements, refer to the Guidelines.

4.6 Industrial Hygiene Sampling/Monitoring

Supplier shall have qualified personnel or an external organization develop industrial hygiene surveillance and conduct hazardous chemicals monitoring in the workplace at least annually or as per applicable regulations.

Supplier shall conduct monitoring for hazardous chemicals in the workplace as per applicable regulations but no later than 30 days after operation start-up.

- If the monitoring results exceed the most stringent applicable **occupational exposure limit (OEL)**, Supplier shall take immediate actions to provide appropriate engineering controls or temporary PPE until there are three consecutive monitoring results below the OEL, each at least one day apart.

When an existing production process is modified, a new production line is introduced, or new products are being manufactured, Supplier shall determine whether additional industrial hygiene monitoring is required by evaluating the MSDS (SDS) of the hazardous chemicals used in the modified or new process. Supplier shall conduct monitoring of hazardous chemicals in the workplace within 30 days of the start of the new process operation.

Definitions

Aboveground storage tank (AST) Any tank or other container that is installed above ground, or with at least 90 percent of its volume above ground.

Secondary containment The containment of hazardous liquids in order to limit the area of spillage and prevent the pollution of surrounding area and the environment. For a single container, capacity of secondary containment shall be sufficient to contain 110 percent of this container volume. For multiple containers, 110 percent of the largest container, or 10 percent of the aggregate capacity of all containers, whichever is greater.

Underground storage tank (UST) A tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground, mounded with earth, or in a vault.

Occupational exposure limit (OEL)
Limits for concentrations of hazardous compounds in workplace air.

4.7 Hierarchy of Controls

Supplier shall eliminate or mitigate chemical hazards identified in the workplace using the hierarchy of controls, prioritized in the following order: engineering controls, administrative controls, and PPE.

4.8 Engineering Controls

Engineering controls include but are not limited to ventilation systems, detectors and alarms, interlock systems, machine guarding, and automated systems.

- *Ventilation Systems* Exhaust ventilation shall be installed in the work area to effectively collect and remove air emissions of hazardous chemicals. Exhaust ventilation systems shall be monitored to employ adequate air speeds and airflow rates, and volumes and ventilation rates to ensure effective removal of the hazardous emissions. For details, refer to the Guidelines.
- *Detectors and Alarms* Supplier shall procure, install, and properly maintain automatic devices to detect the presence of hazardous chemicals in the workplace. Such detectors shall alert workers by means of sound, light, or both. Supplier shall maintain the detector and alarm system in good condition. For details, refer to the Guidelines.

4.9 Administrative Controls

- *Job Hazard Analysis Requirements* Supplier shall conduct a **job hazard analysis (JHA)** to document all chemical hazards at each workstation or work activity, or group of similar workstations or activities. Supplier shall implement engineering controls, administrative controls, and PPE to minimize any identified hazards. JHAs shall be reviewed periodically and upon installation of a new process or change in current operations. For detailed requirements for JHAs, refer to the Guidelines.
- *Lockout/Tagout* **Lockout/Tagout** programs shall be followed during all work or maintenance requiring access to chemical delivery and recirculation lines and pumps (drained or un-drained), electrical systems, moving equipment, and bypassing or defeat of guards and/or interlocks.
- *Confined Spaces* Where the work involves maintenance or cleaning activity in a confined space, confined space entry procedures shall be set up and implemented, with special precautions where hazardous chemicals are used.
- *Hot Work* Appropriate hot work procedures including permitting and fire watches shall be implemented as per local regulations for any areas containing hazardous chemicals.
- *Fall Protection* Appropriate fall protection shall be worn when working from heights in excess of 6 feet (2 meters).
- *Barricades* Barricades and warning signs shall be placed so as to prevent unauthorized access during maintenance and cleaning activities where hazardous chemicals are used.

Definitions

Job hazards analysis (JHA) As known as job safety analysis (JSA), activity hazard analysis (AHA), or risk assessment (RA), job hazards analysis is a safety management tool in which the risks or hazards of a specific job in the workplace are identified, and then measures to eliminate or control those hazards are determined.

Lockout The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device Any device that uses positive means, such as a lock, to hold an energy-isolating device in a safe position, thereby preventing the energizing of machinery or equipment.

Tagout The placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device Any prominent warning device, such as a tag and a means of attachment, that can be securely fastened to an energy-isolating device to indicate that the machine or equipment to which it is attached may not be operated until the tagout device is removed.

4.10 Personal Protective Equipment

Appropriate PPE shall be provided to all personnel at risk of exposure to hazardous chemicals within the worksite. PPE provided must be according to applicable regulations and/or based on recommendations in the MSDS. All workers must be trained on the correct use of PPE.

The minimum PPE requirements for entering or working in any production area with open surface tanks of chemicals are masks or respirators, safety shoes, long sleeves, chemically resistant gloves, and a full face shield (if a full face shield is not accessible, safety goggles are required at minimum).

PPE shall be properly maintained and stored, and inspected periodically based on the manufacturer's instructions.

4.11 Emergency Response

Showers and eyewash facilities shall be installed in all areas where hazardous chemicals are stored or used.

Chemical spill-response kits shall be provided for areas where hazardous chemicals are stored or where there is a possibility of a significant spill of a liquid hazardous chemical. As an alternative, a trained spill-response team may centrally locate these kits.

For further requirements refer to the Emergency Response Standard.

4.12 Medical Surveillance

Supplier shall establish an occupational health surveillance system to identify workers who are routinely exposed to hazardous chemicals, the workstations, the length of time which they have worked at the stations, their pre-task, on-the-job, post-task, and post-emergency medical surveillance records. The system shall meet the requirements as per local regulations.

Supplier shall identify the health hazards caused by hazardous chemicals used in the production process and set up surveillance programs based on *US National Institute for Occupational Safety and Health (NIOSH) Publication Number 81-123 "Occupational Health Guidelines for Chemical Hazards"* and applicable local regulations.

For more detailed requirements, refer to the Guidelines.

4.13 Training and Documentation

Supplier shall provide workers with training covering hazardous chemicals, the hazards associated with each chemical, workplace chemical-control measures, MSDS, labeling requirements, and hazardous-chemical emergency-response actions. Workers directly responsible for handling and storing hazardous chemicals shall be provided with task-specific and/or area training for these operations.

Supplier shall maintain written copies of all legally required records pertaining to hazardous chemicals. For the proper retention period of documentation, refer to the Guidelines.

4.14 Waste Management

Air emissions: Supplier shall follow Apple's Air Emissions Management Standard for air emission control and management.

Wastewater: Supplier shall follow Apple's Wastewater Management Standard for wastewater treatment, discharge, and management.

Waste: Supplier shall follow Apple's Hazardous Waste Management Standard and local regulations for solid waste and hazardous waste disposal and management.

4.15 Metal Finishing Processes

(Only Applicable To Suppliers With Metal Finishing Processes)

4.15.1 Metal Finishing Processes

Metal finishing processes include **electroplating**, electroless plating, coating (chromating, phosphating, and coloring), **anodizing**, chemical etching and milling, and printed circuit board manufacture. This section shall apply to all metal finishing processes.

4.15.2 Industrial Hygiene Monitoring

The monitoring items shall include hazardous chemicals used in the process, including but not limited to phosphoric acid, nitric acid, sulfuric acid, and sodium sulfide, based on the values in the table below.

If national, provincial, or local regulatory requirements specify a lower exposure level, Supplier shall meet the more restrictive limit.

Metal Finishing Exposure Limits

Chemical	CAS #	ACGIH TLVs (2012) mg/m3	Regional OEL Example China OELs (2007) mg/m3
Nitric acid	7697-37-2	2 - TWA 4 - STEL	None established
Phosphoric acid	7664-38-2	1 - TWA 3 - STEL	1 - PEL -TWA 3 - PEL- STEL
Sodium hydroxide	1310-73-2	2 - STEL - Ceiling Limit	2 - MAC
Sulfuric acid	7664-93-9	0.2 - TWA	1 - PEL -TWA 2 - PEL- STEL

STEL Short-term exposure limit, a 15-minute time-weighted average exposure that is not to be exceeded at any time during a workday even if the 8-hour time-weighted average is below the PEL.

PEL-STEL Permissible Concentration–Short Term Exposure Limit. The maximum average concentration to which workers can be exposed for a short period (usually 15 minutes).

PEL-TWA Permissible Concentration–Time Weighed Average. The maximum average concentration of a chemical air for a normal 8-hour working day and 40-hour workweek.

TLV Threshold Limit Value. Airborne concentrations of substances or levels of physical agents under which it is believed that nearly all workers may be exposed day after day without adverse effect. These standards are set by the ACGIH.

ACGIH American Conference of Governmental Industrial Hygienists, a professional society of governmental and academic industrial hygienists that is devoted to the development of administrative and technical aspects of worker health protection.

Ceiling limit Maximum airborne exposure limit for a given substance.

MAC Maximum allowable concentration.

Definitions

Anodizing process An electrolytic passivation process used to increase the thickness of the natural oxide layer on the surface of metal parts (such as aluminum alloys, titanium, and zinc).

Electroplating A process in which a layer of a metal is deposited on metallic or non-metallic electrode by electrolysis in an electrolytic cell.

Metal finishing processes A thin coating of metal deposited on a surface or the formation of an oxidation layer. Metal finishing processes include electroplating, electroless plating, coating (chromating, phosphating, and coloring), chemical etching and milling, and printed circuit board manufacture.

4.15.3 Medical Surveillance

The on-job **medical surveillance** items shall include but are not limited to dental hypersensitiveness, dental erosion, chronic obstructive pulmonary disease, bronchial asthma, and dermatitis (such as skin rash).

4.15.4 Specific Control Requirements

Engineering

- Supplier shall use enclosed type metal plating process equipment with an attached exhaust system to control emissions of gases, vapors, or mists from open-surface tank operations to prevent them from entering the work area as required by applicable local design code.
- Supplier are required to implement appropriate engineering controls including interlocks, automated feeding devices and tools, temperature and pressure sensors, overflow protection, fluid level detectors, and other such devices in the production process.
- A manual stop device shall be installed to turn off the process equipment during an emergency.
- If electric immersion heaters are being used to heat the reaction tanks, special precautions shall be taken as follows:
 - Supplier shall monitor the liquid level of the reaction tank to ensure that the level is maintained at the recommended level.
 - Supplier shall prevent the heater from touching the sidewall of the tank.

Administrative

- Food, cosmetics, and drinks are prohibited in the metal-plating process work area.
- Metal-plating process work areas shall be separately enclosed and accessed by authorized workers only.
- Workers shall be advised to not stay in the metal-plating process work area except as necessary.

Definitions

Medical surveillance A periodic comprehensive review of a worker's health status.

4.15.5 Personal Protection

PPE for access and task-specific activities shall be specified in accordance with the JHA requirements in section 4.11.1. For details on PPE requirements, see the Guidelines.

Metal finishing, such as anodizing activities, includes but is not limited to:

- Non-anodizing general area access
- Production line support activities
- Automated tank chemical filling
- Manual tank chemical filling and “topping off”
- Quality assurance tank sampling
- Maintenance troubleshooting
- Tank and/or tank support equipment (pumps, valves, chemical delivery lines, wastewater treatment lines, exhaust ducting, and so forth) maintenance.

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Supplier Responsibility Standard

Chemical Hazard Management Guidelines

1.0 Hazards Communication

Codes and pictograms may be used but must comply with the Globally Harmonized System for Classification and Labeling of Chemicals, and workers must have knowledge of the meaning of the codes and pictograms.

GHS Pictograms and Hazard Classes



Oxidizers



Flammables
Self Reactives
Pyrophorics

Self-Heating
Emits Flammable Gas
Organic Peroxides



Explosives
Self Reactives
Organic Peroxides



Acute toxicity (severe)



Corrosives



Gases Under Pressure



Carcinogen
Respiratory Sensitizer
Reproductive Toxicity

Target Organ Toxicity
Mutagenicity
Aspiration Toxicity







Environmental Toxicity



Irritant
Dermal Sensitizer
Acute Toxicity (harmful)

Narcotic Effects
Respiratory Tract Irritation

Transport "Pictograms"	
 Flammable Liquid Flammable Gas Flammable Aerosol	 Explosive Division 1.5
 Flammable Solid Self-Reactive Substances	 Explosive Division 1.6
 Pyrophorics (Spontaneously Combustible) Self-Heating Substances	 Compressed Gases
 Substances, which in contact with water, emit flammable gases (Dangerous When Wet)	 Acute Toxicity (Poison): Oral, Dermal, Inhalation
 Oxidizing Gases Oxidizing Liquids Oxidizing Solids	 Corrosive
 Explosive Divisions 1.1, 1.2, 1.3	 Marine Pollutant
 Explosive Division 1.4	 Organic Peroxides

Acute Oral Toxicity - Annex 1					
	Category 1	Category 2	Category 3	Category 4	Category 5
LD50	£ 5 mg/kg	> 5 < 50 mg/kg	³ 50 < 300 mg/kg	³ 300 < 2000 mg/kg	³ 2000 < 5000 mg/kg
Pictogram					No symbol
Signal word	Danger	Danger	Danger	Warning	Warning
Hazard statement	Fatal if swallowed	Fatal if swallowed	Toxic if swallowed	Harmful if swallowed	May be harmful if swallowed

All chemical-transporting pipelines in the workplace must have labels stating the material name and flow direction with proper color scheme as defined in *ANSI/ASME A13.1 Scheme for the Identification of Piping Systems* or local standard, as applicable.

Classification	Color Scheme
Fire-quenching fluids	White on red
Toxic and corrosive fluids	Black on orange
Flammable fluids	Black on yellow
Combustible fluids	White on brown
Potable, cooling, boiler feed, and other water	White on green
Compressed air	White on blue

Eight types of basic identification color, pattern and color codes

Material	Basic Identification Color	Color Pattern	Color Code
Water	Bright Green		G03
Water vapor	Red		R03
Air	Light Grey		B03
Gas	Yellow		Y07
Acid of alkali	Purple		P02
Flammable liquid	Brown		YR05
Other liquid	Black		
Oxygen	Light Blue		PB06


The National Fire Protection Association (NFPA) Hazardous Identification System is recommended for labeling hazardous chemical containers.



RED Fire Hazard		
Rating	Description	Example
0	Will not burn at 1500oF (816oC)	Water
1	Flash point above 200oF (93oC)	Corn oil
2	Flash point between 100oF and 200oF	Diesel fuel oil
3	Flash point 73oF (23oC) and Boiling point above 100oF (38oC); or Flash point between 73oF and 100oF	Gasoline 100-proof (50%) ethyl alcohol
4	Flash point below 73o F (23oC) Boiling point below 100oF (38oC)	Propane gas

BLUE Health Hazard		
Rating	Description	Example
0	No hazard	Air
1	Slightly hazardous	Turpentine
2	Hazardous	Ammonia gas
3	Extremely hazardous	Chlorine gas
4	Deadly	Hydrogen cyanide

YELLOW Reactivity		
Rating	Description	Example
0	Stable	Liquid nitrogen
1	Unstable if heated	Phosphorus
2	Violent chemical	Calcium metal
3	Shock or heat may detonate	Dinitrotoluene
4	May detonate	Trinitrotoluene (TNT)

WHITE Specific Hazard		
Rating	Description	Example
OXY	Oxidizer	Peroxides
W	React with water	Aluminum powder
ACID	Acid	Sulfuric; nitric
ALK	Alkali	Caustic soda
COR	Corrosive	Sulfuric acid
	Radioactive	Uranium

2.0 Hazardous Chemical Handling

2.1 Storage and Containers of Hazardous Chemicals

Hazardous chemicals shall be stored in compatible containers that are not damaged and have no leakage. Daily inspections shall be conducted to review container integrity.

Hazardous chemicals shall not be stored where they can be affected by weather and in every case, the manufacturer's storage instructions shall be followed.

A chemical compatibility chart shall be developed for the hazardous chemicals used and stored on the site. Hazardous chemicals shall be segregated from incompatible chemicals in accordance with Supplier's chemical compatibility matrix.

There shall be no stacking of hazardous chemical containers where there is a risk of spillage. In no case is the stacking of secured containers over three levels in height permitted. Metal drums containing liquids (such as 55-gallon drums) shall not be stacked unless each individual drum is secured to a stacking device (equipment or fixtures specifically design for drum stacking).

Hazardous chemicals stored in warehousing shall be clearly labeled in compliance with the local, provincial, or national regulatory requirements that include the Globally Harmonized System for the Classification and Labeling of Chemicals.

The hazardous chemical storage area shall be equipped with but not be limited to:

- Appropriate ventilation (for example, floor-level exhaust with makeup air for flammables)
- Appropriate fire prevention and control equipment
- Temperature- and humidity-measurement and control devices
- Detectors for any hazardous gases
- Secondary containment. For a single container, capacity of secondary containment shall be sufficient to contain 110 percent of this container volume. For multiple containers, 110 percent of the largest container, or 10 percent of the aggregate capacity of all containers, whichever is greater.
- A dike to prevent spillage from exiting the storage area
- Anti-static devices and explosion-proof electrical devices for flammable and combustible chemical warehouse
- Appropriate personal protective equipment (PPE) available for use
- Emergency equipment, including safety shower, eyewash, and spill kit

Bulk Tank Storage

A register of USTs and ASTs shall include the following information for each:

- Construction date, type, and material
- Location, dimensions, and capacity
- Design pressure and operating temperature and pressure
- Current status (for example, in use, temporarily out of service, decommissioned)

- Appurtenances (for example, pumps, piping, valves, gauges, connections to other vessels, testing ports, instrumentation, controls)
- Spill/leakage prevention systems (for example, double walled)
- Details regarding any spill- or leak-detection systems
- Inspection, maintenance, and repair records

Hazardous chemical storage tank design planning shall include but not be limited to evaluations of the following elements:

- Corrosion-resistant tank construction (fiberglass, stainless steel, or epoxy-coated carbon steel depending on the substance).
- Secondary containment structures (such as dikes or bunds) for ASTs shall be protected with chemically compatible coatings and sealants. Individual secondary containment structure volumes shall be sufficient to contain 110 percent of the capacity of the tank.
- Secondary containment construction materials shall be chemically resistant and impervious to leaks (specific to the materials).
- Storage tanks containing incompatible hazardous chemicals shall be segregated into separate secondary containment areas.
- All tanks shall be equipped with in-tank capacity-gauging devices or level meters and high-level alarm.

The hazardous chemical transportation device shall be equipped with a means to secure the containers of hazardous chemicals to the device and shall include secondary containment equal to the volume of the materials transported unless there is no possibility of spillage due to the packaging (such as sealed metal containers).

3.0 Engineering Controls

3.1 Ventilation Systems

Emission-collection devices shall be installed as close to the source of the emissions as possible to improve capture efficiencies.

Ducts and pipes shall be made of materials that are compatible with their intended use and be maintained and inspected regularly. Incompatible chemicals shall not be vented in same exhaust system.

Processes using toxic or flammable gases or vapors or combustible dusts shall be conducted in rooms or chambers that have negative pressure relative to occupied areas.

3.2 Detector and Alarm

Supplier shall maintain the detector and alarm system in good condition through:

- Developing and implementing maintenance procedures, including maintenance frequency, inspection items, maintenance personnel, and recordkeeping.
- Detector calibration through following equipment manufacturer's instruction for calibration frequency and calibrating vendor and local legal requirements.

4.0 Administrative Controls

4.1 Job Hazards Analysis

- Each JHA that has been conducted shall be reviewed and validated annually.
- Supplier shall conduct a JHA of new operations, including new equipment, new workplace station, or new processes before being put into production or service.
- Supplier shall update a JHA of any changed operation, including changes to equipment, workplace station, workplace location, or process changes, before they are put into production or service.
- A JHA shall review the required medical surveillance examinations and frequency.
- Supplier shall review and update a JHA within 7 days after any incidents resulting in illnesses or injuries.
- Supplier shall review and update a JHA within 7 days after a complaint from a worker.

The JHA shall include the following non-production or all non-routine activities:

- Maintenance tasks due to the potential for physical safety hazards from exposure to electrical energy or other types of energy when working on open surface tanks and related process equipment such as pumps.
- Use, dispensing, or storage of hazardous chemicals as they may present a static electricity/fire risk physical hazard.
- Waste-management activities as they may present a static electricity/fire risk physical hazard or reactivity hazard.
- Emergency situation and rescue activities.

5.0 Medical Surveillance

- Medical surveillance shall be conducted by a qualified clinic.
- Supplier shall provide pre-job medical surveillance to new workers before starting work on production processes using hazardous chemicals.
- Supplier shall provide on-the-job medical surveillance to workers in production processes using hazardous chemicals at least once every two years.
- Supplier shall provide post-job medical surveillance to workers who leave the position.
- Supplier shall provide medical surveillance to workers before the Supplier closes business, merges with another organization, or spins off.
- Supplier shall provide medical surveillance to workers exposed to hazardous chemicals after emergency situations.
- Medical surveillance results shall be provided to the tested workers upon request.

If a worker has abnormal medical surveillance results related to exposure to hazardous chemicals at the Supplier's facility:

- Worker shall be removed from the current job immediately and offered another position in the facility.
- Supplier is prohibited from terminating the labor contract with the worker due to the medical surveillance results.
- Supplier shall provide medical treatment to the worker.
- Supplier shall provide re-examination to the worker.
- Supplier shall cover the medical treatment, re-examination, and rehabilitation cost for the worker.

6.0 Documentation

Supplier shall maintain written copies of all hazardous chemical records for the following periods unless local regulatory requirements are more stringent.

- Permits and regulatory approvals: Current versions and/or historic versions (where specified in regulatory requirements)
- Hazardous chemical inventory records, UST/AST records, and current versions of MSDS/SDS sheets
- Historic hazardous chemical inventories, emergency response (chemical spill) drill records, and spill/leakage incident investigation documents for 5 years
- All equipment, tank, tankage, and area inspection and maintenance records for 5 years
- Employee training records for the previous 5 years or such other period specified by applicable regulatory requirements, whichever is longer
- Worker medical surveillance records: Hazardous chemical medical surveillance records shall be maintained for 30 years plus the duration of the employment, or such other period specified by applicable regulatory requirements, whichever is longer

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Supplier Responsibility Standard

Dormitory and Dining

1.0 Purpose

This Dormitory and Dining Standard (“Standard”) supplements the Working and Living Conditions section of the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding the operation and maintenance of Supplier-provided dormitory facilities. Apple Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Dormitory A building (or buildings) or part of a building that provides sleeping and residential quarters for workers and includes shared toilet facilities and sleeping rooms.

2.0 Scope

This Standard applies to all Apple suppliers their subcontractors and next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirement

Supplier shall provide workers with reasonably accessible and clean toilet facilities and potable water. Supplier provided dining, food preparation, and storage facilities shall be sanitary. Worker dormitories provided by Supplier or a third-party shall be clean and safe and provide reasonable living space.

4.0 Supplier Responsibility Standards

4.1 Dormitory Facilities

Dormitory facilities shall be safe and shall meet all applicable laws and regulations. Dormitory facilities shall have all relevant official permits related to health, safety, and security, including fire protection and sanitation and electrical, mechanical, and structural safety.

Separate sleeping accommodations shall be provided for each gender. If sleeping accommodations for men and women are in the same building, separate rooms shall be provided for each gender.

Comfortable beds, cots, or bunk beds shall be provided for each dormitory resident.

Dormitory sleeping rooms shall use double-deck bunk beds or single beds only. Triple-deck bunk beds are prohibited. Sharing beds is prohibited except within individual family accommodations.

Minimum clearance between upper and lower bunks of double-deck beds should be no less than 0.7 meters.

Dormitory sleeping rooms shall offer no less than 3 square meters of individual living space per occupant. Individual living space is a place that include the provisions for private storage of personal effects for each individual inside the room, but should exclude the inside washing room area and balcony area.

The minimum space between bunk beds should be 0.7 meters. The width of the passage between two bunk beds parallel to each other shall be no less than 1.2 meters.

No more than 8 individuals shall occupy one dormitory sleeping room.

Dormitory sleeping rooms shall have adequate and private arrangements such as personal closets or bins for storing clothing and toiletries. Dormitory rooms shall be equipped with secure storage for storing valuable personal effects and documents.

Dormitory sleeping rooms shall have adequate heat and ventilation.

Dormitory sleeping rooms (not including partitioned areas) shall have at least one window or skylight opening directly to the outdoors.

Dormitory residents shall be free to enter or exit their dormitory sleeping room and dormitory building at any time. Any sign-in/sign-out system shall not require the dormitory resident to receive permission to enter or exit.

4.2 Toilets and Showers

Supplier shall not place any undue restrictions on the use of toilets.

Toilets or privy seats for each gender shall number not less than one per 15 residents, with a minimum of one such unit for each gender in common-use toilet facilities.

Except within individual family accommodations, separate toilet facilities for men and women shall be provided.

If toilet facilities for men and women are in the same building, at least one solid wall from floor to ceiling shall separate them.

Toilet facilities shall be visually marked with "men" and "women" in the native language of the persons expected to access the toilet facilities.

Common-use toilet facilities shall be well lighted, well ventilated, clean, and sanitary. These toilet facilities shall be located within 200 feet (61 meters) of each dormitory sleeping room inside the dormitory building.

Supplier shall provide both hot and cold pressurized water showers for the use of all occupants. These shower facilities shall be clean and sanitary and located within 200 feet (61 meters) of each dormitory building.

There shall be a minimum of one showerhead per 15 persons. Showerheads shall be separated by at least one meter.

Shower floors shall be sloped to properly constructed floor drains.

Separate shower facilities shall be provided for each gender, and must be designated "men" or "women" in the native language of the persons expected to use the facilities.

If shower facilities for both sexes are in the same building, at least one solid wall from the floor to ceiling shall separate them.

4.3 Drinking Water

Supplier shall provide access to potable water, in accordance with applicable law, in sufficient quantity for all dormitory residents and available within 200 feet (61 meters) of each dormitory sleeping room.

Potable water shall be freely available at all times and within a reasonable distance from the workplace and dormitory sleeping rooms.

Potable water must be tested at least annually and must be safe to drink. Potable water test reports must be maintained/posted as required by applicable law and regulations.

4.4 Safety and Egress

Each new occupant needs to receive an orientation on fire safety, emergency evacuation procedures, and training on the use of fire extinguishers. Annual training records shall be maintained.

First-aid kits shall be provided in each dormitory building and readily accessible for use by residents at all times and shall contain adequate supplies.

Each dormitory sleeping room and all common use rooms and areas such as hallways and stairways shall have adequate ceiling or wall-type lights.

All electrical wiring and lighting fixtures shall be properly installed and maintained in compliance per applicable regulations. No improper or illegal splicing of wire is allowed.

For fire safety and shock prevention reasons, electrical equipment exceeding the electrical outlet maximum power rating shall not be allowed. Electrical equipment should be listed for electrical safety per applicable certification authorities. Practices on how to properly load the electrical outlets, extension cords, and power strips as not to induce overloading should be addressed through an education and awareness program.

Adequate lighting shall be provided for the yard area and hallways to common-use rooms. The lighting level shall meet with applicable laws or regulations or relevant international standards.

Each dormitory sleeping room and all common areas shall have proper and functioning smoke detectors. These detectors may be centrally wired or be stand-alone battery-operated detectors. The detectors shall be tested at least annually to ensure continued proper operation.

Proper firefighting equipment shall be provided in a readily accessible place not more than 82 feet (25 meters) from each dormitory sleeping room and common assembly rooms.

All **dining** facilities and common-use rooms shall have at least two doors remotely separated so as to provide separate means of escape to the outside of the building or to an interior hallway.

All dormitory sleeping rooms shall open to common areas or hallways that provide at least two clearly marked exits that are clear, free of obstructions, and available for emergency use at all times.

There shall be at least two clearly marked unobstructed exits on each floor, or as required by applicable regulatory requirements. Emergency lighting shall be installed in hallways and stairways and above each exit.

Definitions

Dining A building (or buildings) or part of a building where food is prepared and/or served and/or consumed by workers.

Hallways and exits shall be free of obstructions to ensure a safe and rapid evacuation in case of fire or other emergencies. Exit doors shall be outward opening and shall not be locked so as to prevent egress. Exit routes shall be maintained during construction, repairs, or building alterations.

Supplier shall post signs (in the native language of the residents) showing the correct evacuation directions in all dormitory sleeping rooms and common use areas to ensure a safe and rapid evacuation in case of fire or other emergencies.

Fire drills shall be conducted at least on a semiannual basis and involve **workers** from all shifts. Fire drill records shall be maintained for at least 3 years.

Storage of hazardous, flammable, or toxic chemicals is not permitted on dormitory premises.

Durable, fly-proof, rodent-proof, clean containers in good condition shall be provided adjacent to each housing unit for the storage of garbage and other refuse.

4.5 Dining and Food Preparation

All food made available to workers shall be prepared, stored, and served in a safe and sanitary manner in accordance with all applicable laws and regulations.

All areas of food preparation shall meet the hygiene and sanitary standards specified in applicable laws and regulations.

Sanitary licenses and permits and inspection records shall be maintained and posted in areas of food preparation and serving as per applicable laws and regulations.

Definitions

Worker Any person, regardless of nationality or country of origin, who is employed directly or via a third party, to work at Supplier's facility.

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Supplier Responsibility Standard

Combustible Dust Hazards

1.0 Purpose

This Combustible Dust Hazards Standard (“Standard”) supplements the Health and Safety section of the Apple Supplier Code of Conduct (the “Code”) by providing clarity regarding combustible dust hazards. For purposes of this Standard, “dust” is a powder consisting of tiny particles of any solid material (for example, metal, plastic, and sugar). Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Combustible dust A particulate solid material that demonstrates either a Kst value of greater than 60 bar-m/sec or that ignites in the Modified Hartmann apparatus at an energy of 10 joules.

Combustible dust hazard A condition created by the presence of a combustible dust.

2.0 Scope

This Standard applies to all Apple Suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall eliminate physical and process safety hazards wherever and whenever possible. Where physical hazards cannot be eliminated, Supplier shall provide appropriate engineering controls such as physical guards, interlocks, and barriers. Where process safety hazards do exist, such as **combustible dust**, over-temperature, or over-pressure situations, Supplier shall understand the potential danger of such hazards and implement appropriate engineering controls. Where appropriate engineering controls are not adequate, Supplier shall establish appropriate administrative controls such as monitoring, safe work procedures, and proper maintenance and housekeeping practices.

In all cases, Supplier shall provide workers with appropriate personal protective equipment and appropriate workplace health and safety information and training. Workers shall not be disciplined for raising safety concerns and shall have the right to refuse unsafe working conditions, without fear of reprisal, until management adequately addresses their concerns.

4.0 Supplier Responsibility Standards

4.1 Identification and Evaluation of Potential Hazards

4.1.1 Identification of Potential Hazards

Any dust used or created by one of the following processes shall be considered a **potential combustible dust hazard**:

- A process where a dry or wet dust collector is being used to collect dust.
- Any grinding, sanding, cutting, milling, routing, or drilling process that creates dust.
- Any polishing or buffing process that creates dust.
- Any other process or manufacturing operation that generates or handles dust or media blasting or other powders.

4.1.2 Evaluation of Potential Hazards

Supplier shall evaluate all identified potential combustible dust hazards as follows:

- The dust must be tested to determine whether it is explosible by first testing in a Modified Hartmann Lucite tube with a constant arc energy source of 10 joules and if not explosible in this test, conducting a subsequent test in a 20-liter vessel according to *ASTM E1226*.
- If the dust is determined to be explosible, Supplier shall have the dust tested to determine its K_{ST} and P_{MAX} (*Explosion Severity Test ASTM E1226*) and **Minimum Ignition Energy (MIE)** (*ASTM E2019*) values.

If the sample is not ignitable in the Modified Hartmann Lucite tube, the MIE test is not required and the MIE shall be reported as greater than 10 joules.

- If either the K_{ST} value is greater than 60 bar-m/sec or the dust ignites in the Modified Hartmann apparatus at an energy of 10 joules, the dust shall be deemed a combustible dust and those areas of the facility where the combustible dust is present shall be deemed to contain a combustible dust hazard.
- If the potential combustible dust hazard contains metals, including iron and steel containing media-blasting compounds, the dust shall be tested to determine whether it presents a fire hazard using the preliminary **screening test** set forth in the *UN Recommendations on the Transport of Dangerous Goods: Model Regulations - Manual of Tests and Criteria, Part III, Subsection 33.2.1*.

If the results of the screening test indicate that propagation occurs along any length of the dust train, beyond the heated zone, then the dust shall be considered to present a fire hazard and shall be subject to the Portable Fire Extinguishers, Dust Control and Housekeeping, and Training sections of this standard.

- Supplier shall document each potential combustible dust hazard and permanently maintain such records. At least once per quarter or upon Apple's request, Supplier shall submit records of combustible dust to Apple.

Definitions

K_{ST} The dust deflagration index. This is the product of the maximum rate of pressure rise reported in bar/sec multiplied by the cubic root of the test vessel volume (in cubic meters) in which the experiments were conducted. The K_{ST} is a relative measure of the burning rate of a combustible dust and is used to assess the explosion severity potential of a particular combustible dust.

Minimum Ignition Energy (MIE) The lowest electrical spark energy capable of igniting the most easily ignitable concentration of a combustible dust cloud.

Potential combustible dust hazard The presence of a particulate solid or a condition within the manufacturing process that has the likelihood of creating an explosion hazard.

Screening test The laboratory test to determine whether the dust is explosible.

4.2 Management of Combustible Dust Hazards

Supplier shall implement measures to mitigate the risk and meet the requirements of this section for combustible dusts and combustible dust hazards.

4.2.1 Management of Change

A management of change program shall be documented, maintained, and implemented for any changes to process materials, technology, equipment, procedures, and facilities, other than replacement in kind. This program shall ensure that the following issues are addressed before the change:

- The safety and health implications
- Whether the change is permanent or temporary
- Modifications to operating, maintenance, and housekeeping procedures
- Whether a **Hazardous Area Classification** needs to be revised
- Existing equipment impacts and suitability for the change
- Worker information and training requirements
- Authorization requirements for the proposed change

4.2.2 Hazard Risk Data

For all combustible dusts, Supplier shall obtain the following additional test data to assist in the development of engineering controls to mitigate the hazards:

- **Minimum Ignition Temperature of the Dust Cloud (MIT-cloud)** ASTM E1126 "Standard Test Method for Explosibility of Dust Clouds."
- **Minimum Ignition Temperature of the Dust Layer (MIT-layer)** ASTM E2021 "Test Method for Hot-Surface Ignition Temperature of Dust Layers."
- **Minimum Explosive Concentration (MEC)** ASTM E1515 "Test Method for *Minimum Explosible Concentration of Combustible Dusts.*"
- **Limiting Oxygen Concentration (LOC)** ASTM WK1680 "Standard Test Method for *Limiting Oxygen (Oxidant) Concentration of Combustible Dust Clouds*" if the basis of safety of the process requires the use of an inert gas.

Definitions

Hazardous Area Classification (HAC) The process of determining the type of electrical equipment that should be installed in an area (to prevent electrical ignition sources from being present) of the plant based on the conditions in that area with regard to formation of a combustible dust cloud or layer.

Limiting Oxygen Concentration (LOC) The minimum concentration of oxygen (displaced by inert gases such as nitrogen (N₂), argon (Ar) or carbon dioxide (CO₂)) capable of supporting combustion of a dust cloud in a concentration above its Minimum Explosible Concentration. The LOC value depends on the inert gas used.

Minimum Explosible Concentration (MEC) The minimum concentration of a combustible dust suspended in air that will support a deflagration.

Minimum Ignition Temperature of the Dust Cloud (MIT-cloud) The lowest surface temperature capable of igniting a powder or dust dispersed in the form of a dust cloud.

Minimum Ignition Temperature of the Dust Layer (MIT-layer) The lowest surface temperature capable of igniting a powder or dust when in the form of a layer.

4.2.3 Facility and System Design

4.2.3.1 Electrical Hazard Area Classification

- Facilities where combustible dust is being produced or is otherwise present shall be subject to a Hazardous Area Classification analysis. NFPA 499 or equivalent should be followed for guidance in conducting the analysis.
- The Hazardous Area Classification analysis shall include a report that identifies the combustible dust hazard areas that have been classified (for example: NFPA Class II Division 1, Division 2 or, European and China Standards Zones 20, 21, and 22), the extent/distances of these classified areas, and the type of electrical equipment that shall be used in these areas.

4.2.3.2 Fire Doors and Emergency Lighting

Openings in fire walls and fire barrier walls shall be protected by self-closing fire doors that have fire-resistance ratings equivalent to the wall design.

Fire doors shall normally be in the closed position and in good working order.

Emergency lighting shall be provided in work areas where artificial lighting is needed for operations or would be needed for emergency exit.

4.2.3.3 Portable Fire Extinguishers

- Portable fire extinguishers shall be provided in areas where combustible dust is present.
- The type, number, and size of extinguishers, and the placement and travel distances between extinguishers shall be as per *NFPA 10*.
- Where metal combustible dust is present, portable fire extinguishers shall be rated for Type D fires.

4.2.3.4 Building Construction

Where a combustible dust hazard exists, new building expansions or alterations shall include process safety requirements and a combustible dust risk analysis shall be conducted and documented by an engineer knowledgeable in applicable building construction and safety requirements.

4.2.4 Process Equipment

4.2.4.1 Dust Collection General Requirements

Where combustible dust is being transported, ductwork shall be constructed of noncombustible, conductive materials and shall be fabricated and assembled with smooth interior surfaces and with internal lap joints facing the direction of airflow.

All conductive components of the dust collector and ductwork shall be bonded and grounded to each other or earth ground.

The ductwork and the fan system shall be designed such that a concentration of dust in the system is less than 25 percent of the MEC.

Ducts shall be as short as possible and shall have as few bends and irregularities as possible, to prevent interference with free airflow.

Duct seams shall be oriented in a direction away from personnel.

4.2.4.1 Dust Collection General Requirements (continued)

Branch lines shall not be added, removed, or closed in an existing system without a ventilation rebalance and redesign, if necessary, to ensure adequate transport velocities exist in the ductwork.

When the dust-handling system has been balanced to achieve the desired airflow rate, all dampers or other flow-control devices shall be secured in position to prevent unauthorized changes.

Dry dust collectors shall be provided with a differential pressure gauge to monitor the pressure drop across the filter media.

The dust-producing equipment shall be interlocked so that improper functioning of the dust-collection system will shut down the equipment where dust presenting a combustible dust hazard is present. The interlock shall be triggered under any of the following conditions:

- The pressure differential between the air inlet and outlet is above the specified value indicating obstructed airflow in the system.
- The pressure differential between the air inlet and outlet is low or at zero.
- Unusual temperature rise within the dust collector.
- The air pressure for the pulse jets in the dust collector is too low.
- Dry dust collector unloading device stops working.

In the event of interlock activation, each facility must follow these steps in this order:

- Evacuate workers
- Investigate interlock activation
- Clean facility and ductwork
- Implement corrective action related to the interlock activation incident
- Restart equipment and confirm proper functioning
- Allow workers back into production area

Transport velocities inside the ductwork shall be sufficient to ensure the transport of both coarse and fine particles and to ensure re-entrainment if, for any reason, the particles fall out before delivery to the collector. For metal dusts, a minimum transport velocity of 23 m/sec is required. For non-metal dusts a minimum transport velocity of 18 m/sec is required.

Inspection doors shall be installed on horizontal sections of ductwork on the sides or top of the ducts. The inspection doors shall be sized to allow duct inspection and cleaning of no less than 1.8 meters into the duct. Inspection doors shall be designed to seal to minimize air leakage.

Horizontal ducts shall have inspection doors installed on centers not to exceed 3.6 meters.

Horizontal ducts shall have inspection doors within 1 meter of elbows and junctions.

4.2.4.1 *Dust Collection General Requirements (continued)*

Ductwork shall be inspected at one-week intervals. Based on recorded observations of accumulations, the inspection frequency may be decreased but not less than once per month. If four consecutive weekly inspections detect no visible accumulation of dust, the frequency of inspections may be reduced to once per month. However, if the dust-collection system malfunctions, is damaged, or is changed, inspections shall once again be done weekly until it is clear that the malfunction, damage, or change and subsequent operation of the collection system did not result in any visible accumulation of dust. If dust accumulations are observed, the causes must be determined and corrected.

Where dust accumulations are found, they shall be cleaned out using a non-sparking tool or an acceptable vacuum system with conductive or anti-static hose and tools.

A system airflow rebalance shall be conducted when any changes in the collection system are undertaken, including removal or addition of a collection point(s).

Compressed air shall not be used to clean out ductwork or any production station where dust is produced.

4.2.4.2 *Collection of Combustible Dust*

Dry dust collectors shall be protected against explosion either by using deflagration vents in accordance with *NFPA 68* or chemical suppression systems in accordance with *NFPA 69*. Explosion vents shall be clearly marked: explosion relief device.

If the dust collector is located indoors and an explosion vent is used, the dust collector shall be located near an outside wall or the roof and the vent shall be directed to a safe location outside the building by means of a vent duct that shrouds the vent opening.

The exhaust blower shall be located on the clean-air side of the dust collector.

Recycling of dust collector exhaust air back into the factory shall be permitted if the system is designed to:

- Prevent return of dust with an efficiency of 99.9 percent at 10 microns.
- Prevent the transmission of energy from a dust collector fire or explosion back into the factory.

Explosion isolation devices shall be installed upstream of the dry dust collector in the ductwork.

4.2.4.3 Collection of Aluminum or Magnesium Dust

Dry dust collectors for aluminum and magnesium dust are prohibited.

Where metal is used for fan blades or housings construction, metal shall be non-sparking metal such as bronze, nonmagnetic stainless steel, or aluminum.

Wet dust collectors shall be permitted indoors.

Flexible hose used for duct shall be in vertical sections only and only when required for movement or vibration of the connected equipment in normal operation. Where flexible hose is used, the hose shall be fabricated with smooth interior surfaces and shall either be conductive or anti-static, the length shall be minimized, and reinforcing wires, if used, shall be bonded to metal ducts on both ends. Hoses made from ordinary insulating plastics shall not be used under any circumstances. A suitable anti-static hose shall exhibit either a surface resistivity of less than $10^{11} \Omega \cdot \text{sq}$, or a volume resistivity less than $10^{10} \Omega \cdot \text{m}$ when tested per *ASTM D257 - Standard Test Methods for DC Resistance or Conductance of Insulating Materials*.

4.2.4.4 Wet Collection Requirements

The exhaust vent shall be inspected and cleaned frequently to prevent build-up of deposits in the duct, where dust presenting a combustible dust hazard exists.

Sludge shall be removed from the collector on a regular basis to ensure proper and safe operation of the equipment.

Vents shall remain open and unobstructed at all times.

Some metal dust (for example, aluminum and magnesium) produces hydrogen gas when put in contact with water. Wet dust collectors handling these materials shall have an alternate means for the hydrogen gas to be released and not accumulate in the event of an exhaust blower shutdown.

The dust-producing equipment shall be interlocked with the airflow to the exhaust blower, liquid level controller, and water flow through scrubber nozzles so that improper functioning of the dust-collection system will shut down the equipment where dust presenting a combustible dust hazard is present.

In the event of interlock activation, facility must follow these steps:

- Evacuate workers
- Investigate interlock activation
- Clean facility and ductwork
- Implement corrective action related to the interlock activation incident
- Restart equipment and confirm proper functioning
- Allow workers back into production area

A time delay switch or equivalent device shall be provided on equipment producing dust that presents a combustible dust hazard, to prevent operation until the dust collector is in full operation.

The use of dry filter medium or dry collection systems downstream of or combined within a wet dust collection system is prohibited.

4.2.5 Dust Control and Housekeeping

Dust-collection systems shall be installed where dust presenting a combustible dust hazard is produced during normal operation.

Equipment shall be maintained and operated in a manner that minimizes the escape of dust presenting a combustible dust hazard.

Dust presenting a combustible dust hazard shall be conveyed to dust collectors in ductwork or in another contained manner.

A housekeeping plan shall be developed and maintained for any areas presenting a combustible dust hazard. The plan shall include appropriate methods and processes for performing the cleaning. The housekeeping plan shall be reviewed and approved by designated safety personnel who are knowledgeable about combustible dust hazards.

Regular cleaning frequencies shall be established for walls, floors, and horizontal surfaces, such as equipment, ducts, pipes, hoods, ledges, beams, and above suspended ceilings and other concealed surfaces, to minimize accumulations of dust that presents a combustible dust hazard within the facility.

The cleaning frequency shall ensure that accumulation of dust that presents a combustible dust hazard does not exceed 0.8 mm in any location.

Surfaces shall be cleaned in a manner that minimizes the generation of dust clouds.

Vigorous sweeping, brushing, or blowing dust with compressed air produces dust clouds and shall not be permitted.

Preliminary clean-up of metal dust shall be accomplished using conductive, non-sparking scoops or shovels, soft brooms or brushes with natural-fiber bristles, or vacuum cleaning systems designed for handling combustible dust as defined later in this section.

Final clean-up for removing thin films of combustible dust may be accomplished using wet rags or mops. When using water for cleaning up metal combustible dust, ventilation, either natural or forced, shall be used to prevent hydrogen gas build-up.

Portable vacuum cleaners used to clean up dust presenting a combustible dust hazard in non-classified areas shall meet the following requirements:

- Materials of construction shall be noncombustible. Exception: Filter media and filter media support frames may be constructed of combustible material.
- Hoses shall be conductive or static dissipative. A hose with an anti-static liner shall demonstrate a surface resistivity (SR) of less than 10¹¹ ohm/sq or a volume resistivity (VR) of less than 10¹⁰ ohm·m.
- All conductive components, including wands and attachments, shall be bonded and grounded.
- Dust-laden air must not pass through the fan or blower.
- Electrical motors shall not be exposed to dust-laden air, unless they are listed for Class II, Division 1 locations; otherwise, a vacuum cleaner with a compressed-air motor shall be used.

- When liquids or wet materials are picked up by the vacuum cleaner, paper filter elements shall not be used.
- Vacuum cleaners used for clean-up of metal dust presenting a combustible dust hazard shall be designed for use on the specific dust being collected.

Portable vacuum cleaners used in areas that have been classified as either Class II Division 1 or Class II Division 2 shall be listed for use in Class II hazardous locations or shall be a fixed-pipe suction system with remotely located exhausters and dust collector.

Where Class I flammable vapors or gases are present, portable vacuum cleaners shall be listed for both Class I and Class II hazardous locations.

4.2.6 Protective Clothing

Workers in Class II Division 1 or Class II Division 2 areas shall be provided with outer clothing that is flame retardant.

4.2.7 Control of Ignition Sources

4.2.7.1 Hot Work

The requirements below shall apply to all areas where metal dust or dust presenting a combustible dust hazard is present.

- A fire permit (hot work) program shall be in place and shall follow the requirements of NFPA 51.
- Fire permits shall be required when hot work is performed.
- Open flames, cutting or welding operations, and use of spark-producing tools or other equipment shall not be permitted unless designated safety personnel approve the fire permit.
- All hot work areas that require a permit shall be thoroughly cleaned of combustible materials, including metal dust and dust that presents a combustible dust hazard, before hot work is performed, and nearby workers shall be notified of the high risk.

4.2.7.2 Smoking

Smoking shall not be permitted in areas where metal dust or dust presenting a combustible dust hazard is present.

Matches and lighters shall not be permitted in Class I or Class II areas.

4.2.7.3 Control of Static Electricity

All permanently installed process equipment and all building structural steel shall be grounded by permanent ground wires.

Movable or mobile process equipment or tools of metal construction shall be bonded and/or grounded prior to use.

Workers in a Class I area or in a Class II area where combustible dust MIE is less than 50 millijoules shall be grounded. The surface on which they are standing shall be suitably conductive as indicated by a maximum electrical resistance to ground of 100 mega ohms. An anti-static mat may be required if the resistance of the floor is too high.

All machinery where non-conductive components present a discontinuity in the grounding path shall be bonded between adjacent conductive components.

The wire between two bonding clips shall be verified as conductive.

4.2.7.4 *Control of Friction and Hot Surfaces*

All machinery shall be installed and maintained in a manner that minimizes the possibility of friction sparks.

All hot surface temperatures shall be controlled to not exceed the combustible dust MIT layer in areas where the combustible dust may exist.

4.2.7.5 *Bearings*

Ball or roller bearings shall be sealed against dust ingress.

Clearances between moving surfaces that are exposed to dust shall be maintained to prevent rubbing or jamming.

Machines shall be designed to minimize localized frictional heating of bearings and an appropriate maintenance program shall be implemented.

4.2.8 *Training*

All workers in areas generating, handling, or otherwise processing combustible dust shall be initially trained and retrained annually in the following procedures:

- All workers shall be instructed by their supervisors regarding the hazards of their working environment and appropriate procedures in case of fire or explosion.
- All workers shall be shown the location of electrical switches and alarms, first-aid equipment, safety equipment, and fire-extinguishing equipment.
- All workers shall be trained in basic fire safety.
- The hazards involved in causing dust clouds and the danger of applying liquids onto a metal fire shall be explained.
- Workers shall be trained in the means of safe and proper evacuation of work areas.
- Equipment operation, proper methods of start-up and shutdown, and response to abnormal conditions shall be explained.
- The necessity for proper functioning of related fire and explosion protection systems shall be explained.
- The workers' roles in evacuation, sounding of alarms, gathering areas, and any other related items in the event of an emergency shall be explained.

Training shall be documented and permanent records kept on site.

4.2.9 Inspection and Maintenance

An inspection, testing, and maintenance program shall be implemented that ensures appropriate process controls and that all equipment performs as designed.

The inspection, testing, and maintenance program shall include the following:

- Fire and explosion protection and prevention equipment.
- Dust control equipment:
 - Inspection of doors on dust collection equipment, to ensure proper fit including condition of gaskets
 - Inspection of dust collection ductwork for accumulations of dust, leaks, and so forth
- Housekeeping, as per Section 4.2.5.
- Potential ignition sources, as per Section 4.2.7
- Electrical, process, and mechanical equipment, including process interlocks.
- Continuity checks on grounding and bonding systems.
- Resistivity testing of static dissipative footwear and conductive floors where required.

A thorough inspection of the operating area shall take place periodically on an as-needed basis, not to exceed quarterly, to ensure that the equipment is in good condition and that proper work practices are being followed.

A person(s) knowledgeable in the proper practices related to combustible dust safety shall conduct the inspection, and all findings and recommendations shall be documented and recorded.

Referenced Standards

General

The documents or portions thereof listed in this Section shall be considered part of the requirements of the Standard. Local standards may be applied in lieu of NFPA standards only where the local standards provide an equivalent level of protection. In the event of substitution, Supplier is responsible for documenting justification.

NFPA (Internationally Recognized) Publications

(National Fire Protection Association, 1 Batterymarch Dr., Quincy, MA), USA)

- NFPA 10 “Standard for Portable Fire Extinguishers”
- NFPA 68 “Standard on Explosion Protection by Deflagration Venting”
- NFPA 69 “Standard on Explosion Prevention Systems”
- NFPA 70 “National Electrical Code”
- NFPA 77 “Recommended Practice on Static Electricity”
- NFPA 91 “Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids”

- NFPA 101 “Life Safety Code”
- NFPA 484 “Standard for Combustible Metals”
- NFPA 499 “Recommended Practice for the Classification of Combustible Dusts and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Areas”
- NFPA 654 “Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids”

Chinese Publications

- GB-15577 – 2007: Safety Regulation for dust explosion prevention and protection
- GB/T 17919 – 2008: Directives for dust explosion protection for dust collectors in dust explosion hazardous areas
- GB/T 11651: Code of Practice for Selection of Personal Protective equipment
- GB 12476.1: Electrical apparatus for use in the presence of combustible dust Part 1: Electrical apparatus protected by enclosures and surface temperature limitation – Section 1: Specification for apparatus (IDT IEC 61241 – 1: 1999)
- GB/T 15605: Guide for pressure venting of dust explosions
- GB 50058 Electrical installations design code for explosive atmospheres and fire hazard
- GB 50016-2006: Code of design on building fire protection and prevention
- GB/T 18154: Technical specification of automatic dust explosion suppression devices

European Standard

- IEC 60079-10-2 “Explosive Atmospheres - Part 10-2: Classification of Areas - Combustible Dust Atmospheres

UN Regulation

- UN Recommendations on the Transport of Dangerous Goods: Model Regulations - Manual of Tests and Criteria, Part III, Subsection 33.2.1.

For more information about Apple’s Supplier Responsibility Program, visit www.apple.com/supplier-responsibility.

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Supplier Responsibility Standard

Hazardous Waste Management

1.0 Purpose

This Hazardous Waste Management Standard (“Standard”) supplements the Environment section of the Apple Supplier Code of Conduct (the “Code”) to provide clarity regarding the handling and management of Supplier-generated hazardous waste. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall implement a systematic approach to identify, manage, reduce, and responsibly dispose of or recycle **hazardous substances**. Supplier shall comply with Apple’s Regulated Substances Specification for all goods it manufactures for and provides to Apple.

4.0 Supplier Responsibility Standard

4.1 Identification of Waste Stream

Supplier shall identify all sources of **waste** and characterize each waste stream as either **hazardous waste** or **non-hazardous waste** as per applicable regulations, or if no regulations apply, in accordance with this Standard.

Supplier shall develop and maintain a waste inventory for all waste generated. The waste inventory shall include generated quantities of waste per month; the waste category (hazardous or non-hazardous); the method of disposal, recycling, or other disposition for all waste; and names of waste transport and disposal vendors.

Supplier shall review the facility waste inventory annually.

Supplier shall update the waste inventory based on any process or production change.

Definitions

Hazardous substance Substances that are considered harmful to human health and the environment.

Hazardous waste Waste that poses a direct threat to human or animal health or the environment.

Non-hazardous waste Waste that does not pose a direct threat to human or animal health or the environment, such as food and yard or garden waste, packaging materials, and sanitary wastes as specified in applicable regulations.

Waste Materials resulting from the production, transformation, and/or consumption of other materials, for which the producer has no further use, and that will be or have been discarded.

4.2 Control of Waste

Supplier shall segregate hazardous waste from non-hazardous waste per applicable regulations and this Standard.

Supplier shall implement responsible waste collection and storage practices, including but not limited to:

- Waste shall be collected and stored in appropriate containers based on their chemical and physical characteristics.
- Secondary containment shall be provided during collection and transfer of hazardous waste from production areas to hazardous waste storage areas.
- Waste containers shall be provided with standardized labels in accordance with applicable regulations. At a minimum, each label shall include the type of waste, appropriate hazard warnings, and the date of waste origination.
- Waste containers shall be in good condition and capable of preventing leaks or spills.
- Hazardous waste shall not be stored on-site for more than the period as required by applicable local regulations.
- Hazardous waste containers shall be inspected weekly to ensure container integrity, to prevent and control leaks, and to identify and correct missing or incorrect labels. Supplier shall maintain written copies of these weekly inspections.

Supplier's hazardous waste storage areas shall meet the following requirements:

- Construction materials and electrical equipment shall be compatible with the hazardous waste stored.
- Signage shall be posted inside and outside the hazardous waste storage areas to indicate:
 - The nature of any hazards posed by the hazardous waste.
 - Any personal protective equipment required to enter the area.
 - Any labeling stipulated by applicable regulations and standards.
 - Any restrictions on smoking and other activities.
- Unauthorized access to hazardous waste storage areas is prevented.
- An enclosure or other covering prevents exposure to the elements.
- Equipped with secondary containment that will capture and hold leaks or spills.
- Designed and constructed to prevent spills or leaks from the hazardous waste storage area from contaminating surface water or groundwater, or from entering storm drains or sewers.
- Firefighting equipment shall be readily available and accessible.
- A working alarm system that will alert facility workers and outside emergency responders in the event of an emergency.
- Forced ventilation equipment for areas where volatile, acidic, caustic, or corrosive substances are stored.
- Personal protective equipment for workers handling hazardous waste.
- Storage area for personal protective equipment outside the hazardous waste storage area that maintains the integrity and functionality of the equipment.
- Sufficient space for the ingress, egress, and other movement of emergency response personnel and equipment.

4.3 Disposal of Waste

Supplier shall only use licensed and qualified hazardous waste transporters.

Supplier shall audit hazardous-waste transportation vendors annually. Audits shall include reviewing environmental violations and copies of vendor licenses, permits, and registrations. If an environmental violation is identified, Supplier shall:

Notify Apple of the hazardous waste transporter and its violation.

Work with the hazardous-waste transporter to develop, implement, and monitor corrective actions.

Supplier shall obtain approval for hazardous waste transfers from each applicable regulatory agency in accordance with applicable regulations.

Supplier shall complete written records and manifests for all hazardous waste-disposal activities in accordance with local and national regulations.

Supplier shall submit copies of records, manifests, and other required documentation to the appropriate authorities and regulatory agencies, and any relevant third parties (transporters and receivers) in accordance with applicable requirements.

4.4 Emergency Response

Supplier shall designate at least one properly trained **emergency coordinator** on the premises with the responsibility for coordinating all facility emergency response and reporting activities. An emergency coordinator shall be on the premises whenever the facility is in operation.

Supplier shall conduct emergency response drills related to the hazards of the facility annually, or such other time period specified by applicable regulatory requirements, whichever is shorter.

Supplier shall establish a written **emergency response plan (ERP)** to minimize the risks to human health and the environment. The ERP shall include:

- Internal reporting and notification requirements.
- Names and contact information for responsible facility personnel, local fire and emergency response contacts, and local hospitals and other appropriate medical contacts.
- Identification and assessment of immediate potential threats, including risks of fire/explosion or spillage or leakage from facility processes and storage areas.
- Emergency evacuation routes, procedures, and controls.
- Detailed procedures for control and containment of released hazards.
- Proper cleanup and disposal of any released hazardous materials.

Definitions

Emergency coordinator A person designated by the facility to manage any emergency-related activities at the facility. This person shall have the authority to commit the resources needed to respond to all emergencies and be thoroughly familiar with the facility, all facility operations, all aspects of the facility ERP, and locations of all records within the facility.

Emergency Response Plan (ERP) A document prepared by Supplier that describes actions to be taken during an emergency. It includes emergency contact information, emergency communication procedures, emergency hospital information and procedures for control and containment of released materials and cleanup.

4.5 Operations and Maintenance

Supplier shall have the required environmental permits and other required approvals for its current operations.

Supplier shall plan and provide adequate time to update current environmental approvals and permits for any alteration that may change the environmental impact of Supplier's operations.

Supplier's pollution-control technologies shall be operational prior to Supplier generating any waste.

Supplier shall plan and provide adequate time to implement controls and obtain approvals for any alteration that may change the identification, collection, storage, handling, and disposal of hazardous waste.

Supplier shall comply with applicable hazardous waste permitting and reporting requirements in accordance with applicable regulations. Supplier shall implement the following:

- Register all hazardous waste in accordance with applicable regulatory requirements.
- Obtain permits for pollutant discharge, hazardous waste handling, hazardous waste storage, and hazardous waste transport in accordance with applicable regulatory requirements.
- Report any **alteration** that may change the status of registration and permitted hazardous-waste generation to the appropriate local and national regulatory agencies.

Supplier shall provide worker training for hazardous waste handling, storage, emergency response actions, and proper record keeping.

Supplier shall maintain a waste-minimization plan to assess on-site hazardous waste generation and to identify opportunities to minimize hazardous waste. If the facility's environmental permit requires meeting hazardous waste-minimization goals, Supplier shall develop and implement a plan to meet the regulatory agency's waste-minimization goals.

Definitions

Alteration Any change to a production or other process, management of waste, volume of waste, or the addition of other chemical substances.

4.6 Documentation

All hazardous waste–management records and documentation shall be made available to Apple for review upon its request. Supplier shall retain the documentation related to hazardous waste management as follows:

- Employee training records shall be retained for the previous 5 years or such other period specified by applicable regulatory requirements, whichever is longer.
- Employee medical records shall be retained for the length of employment plus 30 years or as required by applicable regulatory requirements, whichever is longer.
- Current and historical copies of permits and registrations as required by applicable regulations or this Standard.
- Current hazardous waste inventory.
- Documentation showing hazardous waste is removed from the storage unit at least once per applicable accumulation period.
- Hazardous waste manifests and other shipping records shall be retained for 5 years.
- Current list of vendors performing reuse, recycle, transport, or disposal of hazardous waste directly for the Supplier.
- Incident records regarding all hazardous waste incidents at the facility shall be retained for 5 years.

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Supplier Responsibility Standard

Wastewater Management

1.0 Purpose

This Wastewater Management Standard (“Standard”) supplements the Environment section of the Apple Supplier Code of Conduct (the “Code”) to ensure that all regulated **process wastewater** generated from a facility’s production process are properly managed to avoid adverse impacts on the environment. Apple’s Suppliers must meet this Standard in order to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors and next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall implement a systematic approach to identify, control, and reduce **wastewater** produced by its operations. Supplier shall conduct routine monitoring of the performance of its wastewater treatment systems.

4.0 Supplier Responsibility Standards

4.1 Identification of Process Wastewater Sources

Supplier shall identify and characterize all process wastewater streams.

Supplier shall organize and maintain process wastewater stream inventory:

- The inventory shall include the composition and volume of each process wastewater stream.
- Supplier shall revise the inventory after any **alteration** likely to affect process wastewater.
- Supplier shall review the inventory annually.
- Supplier shall maintain the inventory in electronic form and make it immediately available for review by Apple upon its request.

Definitions

Alteration Any change to a production or other process that may lead to introduction of new process wastewater stream or a change in the composition, volume, treatment process, or monitoring requirements of existing process wastewater stream.

Process wastewater Water discharged from manufacturing or industrial processes with the potential to contain contaminants.

Wastewater Water that is no longer suitable for human consumption due to actual or potential contamination.

4.2 Control of Process Wastewater Discharge

Supplier shall report and/or register process wastewater discharges in accordance with applicable laws and regulations.

Supplier shall install and maintain appropriate process wastewater treatment systems that reduce the pollutant contribution of each of its facilities to levels compliant with applicable laws and regulations.

Supplier shall, in the absence of an on-site process wastewater treatment system, discharge process wastewater into the industrial park wastewater treatment system or municipal wastewater treatment system. Supplier shall not discharge untreated process wastewater into the surrounding environment (except as and if permitted by applicable laws and regulations).

Supplier shall comply with all applicable laws, regulations, and requirements related to process wastewater discharge, and shall do the following:

- Obtain new, additional, and/or amended or updated permits/registrations prior to any alterations. This review process shall allow time to update control technologies before the alteration takes effect.
- Acquire and maintain all process wastewater discharge permit(s) per applicable laws and regulations.
- Verify compliance with current process wastewater discharge.
- Not intentionally dilute process wastewater to meet permit requirements and/or regulatory standards.
- Comply with the recycle and reuse requirements for process wastewater as required by relevant regulatory agencies.

Process wastewater that is not treated by an on-site wastewater treatment plant shall be handled as **hazardous waste** in accordance with applicable laws and regulations.

4.3 Evaluation and Monitoring of Process Wastewater Discharge

Supplier shall monitor process wastewater discharges in accordance with regulatory requirements. The parameters selected for monitoring shall be indicative of the pollutants of concern and shall include parameters that are included in the permit or in applicable regulations.

Supplier shall monitor process wastewater discharges (for both pollutant concentrations and volume generated) at the frequency required by local regulations, or in the absence of such regulations at least once per month, to ensure compliance with applicable laws and regulations.

Supplier shall monitor all process wastewater discharges at the locations or in the manner specified in the permit or required by applicable laws and regulations.

Supplier shall submit process wastewater monitoring reports to the applicable regulatory agency as required for regulatory compliance. In addition, the process wastewater monitoring reports shall be maintained in electronic form and made immediately available for review by Apple upon its request.

Definitions

Hazardous waste Waste that poses potential direct threat to human or animal health or the environment.

4.4 Emergency Response

Supplier shall prepare for emergencies and implement emergency response actions in case the on-site process wastewater treatment system exceeds its capacity or if it malfunctions. The emergency response actions are as follows:

Waste Water Treatment Plant (WWTP) capacity exceedance:

- Supplier shall stop process wastewater discharge from the production areas into the WWTP.
- Supplier shall isolate stormwater drain inlets within its facility so there is no cross-contamination from backed-up process wastewater.
- Supplier shall direct the excess process wastewater into a backup collection system/containers.

WWTP malfunction:

- Supplier shall stop wastewater discharge offsite from the WWTP immediately.
- Supplier shall stop process wastewater discharge from the production areas into the WWTP.
- Supplier shall replace or repair the WWTP equipment in a timely manner so the WWTP expeditiously resumes normal operations.
- Supplier shall report malfunctions to the local authorities per applicable laws and regulations.
- If contaminated wastewater over permitted limits is discharged, Supplier shall notify and obtain a variance permit from the local authorities, if possible.
- For treatment system malfunctions, Supplier shall immediately implement any system upgrades, repairs, and/or monitoring programs to meet regulatory discharge standards.

Upon receipt of any community complaints, Supplier shall conduct process wastewater discharge monitoring to verify the process wastewater discharge status and promptly implement any necessary or advisable corrective actions.

Upon receipt of any **Notice of Violation** from local authorities, Supplier shall communicate with the authority in a timely manner, inform all relevant parties about the violations, and subsequently take any corrective actions in a timely manner or as specified by the authorities.

Supplier shall notify Apple within 7 days and appropriate regulatory agencies as required by applicable regulations if an **unusual environmental event** occurs. Notification shall include the probable cause of the unusual environmental event and corrective or preventive actions.

Definitions

Notice of Violation A written method of alleging; 1) a violation that does not qualify as a minor violation for which a "Notice to Comply" is the only allowable means of citation, or 2) minor violation that is not corrected within the time required.

Unusual environmental event Include but are not limited to process equipment upsets like increased load, natural disasters, wastewater treatment system breakdowns, accidents, and power failures. These events lead to failed wastewater treatment systems and discharge of pollutants in excess of permitted limits.

Waste Water Treatment Plant (WWTP) Treatment facility that is used to treat (per local regulations) wastewater generated at a factory prior to its discharge.

4.5 Operations and Maintenance

Supplier shall have all required environmental approvals for current production.

Supplier shall plan and provide adequate time to update current environmental approvals for any alteration.

Supplier's process wastewater treatment system shall be operational prior to use of corresponding production equipment.

Supplier shall plan and provide adequate time to implement changes to its process wastewater treatment system prior to any alteration.

Supplier shall develop operating and preventive maintenance programs for on-site WWTP in accordance with the following:

- Clearly defined and documented worker responsibilities and training requirements for the operation, inspection, and maintenance of the WWTP.
- Standard operating procedures for preventive maintenance that incorporate manufacturers' specifications/recommendations and industry best practices.
- Key parameters for monitoring WWTP effectiveness and the frequency of routine inspections based on regulatory and/or permit requirements, preventive maintenance requirements, and other factors. The inspection plan shall cover all shifts during typical facility operations.
- Operating procedures for shutting down the WWTP. Before shutting down the WWTP for any planned reason (for example, maintenance, capacity exceedance, or malfunction), process wastewater discharge to the WWTP shall be suspended and prevent process wastewater discharge from being released without treatment. Associated production equipment may resume operation only when the WWTP is operating properly.

Supplier shall establish a program to evaluate the integrity of existing process wastewater collection systems, including wastewater pipelines, underground drains, wastewater sumps, and the on-site WWTP, and correct any identified deficiencies immediately. The program shall include regular integrity testing of the process wastewater system at a frequency based on the risks of leaks identified during the evaluation.

Supplier shall identify a specific individual or individuals within the facility organization who will be responsible for all aspects of process wastewater discharge treatment, including maintenance and inspection of WWTP, monitoring of process wastewater discharge, and responding to emergencies.

Supplier shall provide training to operators of process wastewater treatment facilities that cover operation and maintenance of equipment and other process units in the WWTP. Operators shall hold WWTP operator certificates as required by local or national regulatory requirements.

4.6 Documentation

Supplier shall retain both written and electronic copies of process wastewater discharge data and documentation for at least 5 years or as per local regulatory requirements, whichever is longer. Required documents to be retained include but are not limited to:

- Process wastewater stream inventories.
- Process wastewater discharge monitoring results.
- Licenses, permits, and other regulatory registration documents.
- Expansion, renovation, or new WWTP records, permits, or regulatory correspondence.
- Written records of process wastewater–related communications with external parties, including but not limited to community groups and local authorities.
- Routine inspection and maintenance records.
- Reports of unusual environmental events and corrective response actions undertaken.
- Records of any corrective actions, rectifications, or follow-up actions taken for any deficiencies, complaints, or Notices of Violation.

Supplier shall retain training records for personnel assigned to the operation, inspection, and maintenance of the WWTP for the previous 5 years or as per applicable laws and regulations, whichever is longer.

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Supplier Responsibility Standard

Stormwater Management

1.0 Purpose

This Stormwater Management Standard (“Standard”) supplements the Environment section of the Apple Supplier Code of Conduct (the “Code”) to provide clarity regarding management of stormwater within a Supplier’s facility. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors and next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall implement a systematic approach to prevent contamination of stormwater runoff. Supplier shall prevent illegal discharges and spills from entering storm drains.

4.0 Supplier Responsibility Standards

4.1 Identification of Pollutant Sources

Supplier shall identify potential pollutant sources that might affect stormwater runoff. Supplier shall do the following to identify pollutant sources:

- Prepare a list of areas of **industrial activities** exposed to stormwater and its **pollutant constituents**.
- Prepare a list and description of potential spills and leaks that could contribute pollutants to stormwater discharge, and specify which outlets are likely to be affected.
- Prepare a list and description of past spills and leaks in the previous 3 years that occurred at areas exposed to stormwater, or that drained to the stormwater drainage system.
- Prepare a list of **non-stormwater discharges** and eliminate any **unauthorized non-stormwater discharges**.

Definitions

Industrial activities Areas that include storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust- or particulate-generating areas, and cleaning and rinsing areas.

Non-stormwater discharge Flows that do not consist entirely of stormwater, such as surface runoff at the facility that can be potentially contaminated with pollutants from industrial activities.

Pollutant constituents Pollutants that are associated with industrial activities such as oil, metals, solvents, acids, and alkalis.

Stormwater Water that originates during precipitation events, snowmelt runoff, and surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

Unauthorized non-stormwater discharge Includes waters from rinsing or washing vehicles, equipment, buildings, or pavement; materials that have been improperly disposed of or dumped; and spilled or leaked materials.

Supplier shall prepare a facility map that includes the following information:

- Outlines of stormwater drainage areas within the facility, portions of the drainage area affected by run-on from surrounding areas, and direction of flow of each drainage area, on-site **water bodies**, and areas of soil erosion.
- Locations of nearby water bodies and municipal storm drain inlets where the facility's stormwater discharges and **authorized non-stormwater discharges** may be received.
- Location of stormwater collection and conveyance systems, associated points of discharge, and direction of flow, including any **structural control** measures that affect stormwater discharges, authorized non-stormwater discharges, and runoff.
- Outline of all impervious areas of the facility, including paved areas, buildings, covered storage areas, and other roofed structures.
- Locations where materials are exposed to precipitation and locations where significant spills or leaks have occurred.
- Locations of areas of industrial activities that are potential pollutant sources.

4.2 Control of Stormwater Discharge

Supplier shall select effective structural controls and **non-structural controls** to prevent stormwater pollution.

Supplier shall conduct surveys to identify any direct connections from industrial production areas into a stormwater drainage system. If there are such connections, Supplier shall remove them immediately.

Supplier shall manage wastes generated from stormwater control systems in accordance with all applicable regulations.

4.3 Evaluation and Monitoring of Stormwater Discharge

Supplier shall conduct periodic monitoring of its stormwater discharges per applicable regulations. Supplier shall monitor stormwater discharges to evaluate the effectiveness of control measures at the facility to minimize or eliminate pollutants from stormwater runoff. Supplier shall conduct the following types of monitoring at the facility:

- *Assessments of Discharges* Supplier shall take a grab sample of stormwater discharge while it is raining and assess key indicators of stormwater pollution: color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, metals, and total toxic organics. The findings of these assessments shall lead to further facility inspections and corrective actions to modify problems with control measures for stormwater discharges.
- *Indicator Sampling* Supplier shall collect stormwater discharge samples once each calendar quarter from a facility's discharge points for laboratory analyses. Chemical parameters for laboratory analyses shall include at a minimum color, total suspended solids, oil and grease, total metals, and total toxic organics. Results shall be compared with the receiving water body's allowable pollutant concentration limit as an indicator of the performance of stormwater control measures. An indicator pollutant concentration is a level above which a stormwater discharge could adversely affect the water quality of the receiving water body and means that control measures must be evaluated and fixed.

Definitions

Authorized non-stormwater discharge Non-stormwater discharges that are allowed if they meet certain conditions in some jurisdictions.

Non-structural controls Processes, prohibitions, procedures, and operating schedules that prevent industrial pollutants from contacting stormwater and authorized non-stormwater discharges. These are low-tech, cost-effective measures.

Structural controls Structural devices (such as catch basins, berms, ponds, secondary containment, and oil/water separators) used to reduce or prevent pollutants from entering stormwater runoff.

Water bodies Includes rivers, lakes, and ponds.

- *Compliance Sampling* If Supplier is governed by local and/or national discharge limitation guidelines sampling shall be required to determine compliance with those limits. If effluent limits are exceeded, the Supplier shall conduct corrective actions and additional sampling to show compliance.

Supplier shall conduct one comprehensive annual evaluation of its stormwater control measures that includes the following:

- An evaluation of visual observations and sampling/analytical data.
- A summary of inspections specified in the **Stormwater Pollution Prevention Plan (SWPPP)**.
- Incident reports and corrective action tracking results.

4.4 Emergency Response

Supplier shall ensure that there is at least one employee responsible for coordinating all facility stormwater-related emergency response and reporting activities.

Supplier shall have a system in place that can immediately close a stormwater drain outlet discharging outside the facility boundary if there is a hazardous substance spill released to the stormwater drainage system.

Supplier shall have the necessary plans and procedures to notify internal management and local regulatory agencies and take immediate steps to fix a hazardous substance spill that has reached outside the facility boundary.

Supplier shall conduct an analysis to determine the cause of the emergency release incident and implement corrective actions.

4.5 Operations and Maintenance

Supplier shall comply with stormwater permitting and reporting requirements per applicable regulations.

Supplier shall create, implement, and maintain a written SWPPP to support prevention of stormwater-runoff pollution .

Supplier shall revise the SWPPP as appropriate, and implement it prior to any changes in industrial activities at the facility that do the any of the following:

- Significantly increase the quantities of pollutants in stormwater discharge.
- Cause new areas of industrial activity to be exposed to stormwater.
- Begin an industrial activity that would introduce a new pollutant source at the facility.

Supplier shall identify a specific individual or individuals within the facility who will be responsible for the development, implementation, revision, monitoring, inspecting, as per the requirements of the SWPPP, and responding to emergencies.

Supplier shall provide adequate stormwater management training for all workers whose work may affect the quality of stormwater as per applicable regulations.

Definitions

Stormwater Pollution Prevention Plan (SWPPP) A document that identifies structural and non-structural controls that will be put in place to minimize negative effects to the environment caused by offsite stormwater discharges.

4.6 Documentation

Supplier shall retain and make available to Apple upon its request, the following stormwater management–related documentation:

Current copies of stormwater control and/or treatment system drawings.

Copies of employee training records for the previous 5 years or as per applicable laws and regulations, whichever is longer.

Records of internal incident investigation, management/regulatory notifications, and follow-up actions/closure for the previous 5 years.

Records of internal incident investigation, management/regulatory notifications, and follow-up actions/closure for the previous 2 years.

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Supplier Responsibility Standard

Air Emissions Management

1.0 Purpose

This Air Emissions Management Standard (“Standard”) supplements the Environment section of the Apple Supplier Code of Conduct (the “Code”) to ensure that all air emissions are managed properly to avoid adverse impacts on the environment. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall identify, manage, reduce, and responsibly control **air emissions** emanating from its operations that pose a hazard to the environment. Supplier shall conduct routine monitoring of the performance of its air emission control systems.

4.0 Supplier Responsibility Standards

4.1 Identification of Air Emission Sources

Supplier shall identify air emissions sources, including those from industrial activities, auxiliary devices, and dormitory and canteen areas. Examples of processes that contribute to air emissions and corresponding air pollutants are identified in the table on the following page.

Definitions

Aerosols Small particles or liquid droplets dispersed in the air or a gas.

Air emissions Any regulated polluting substance introduced directly or indirectly into the ambient air by the Supplier’s facility and likely to have harmful effects on human health and/or the environment as a whole. Air emissions include but are not limited to volatile organic compounds (VOCs), nitrogen oxides (NOx), sulfur oxides (SOx), carbon monoxide (CO), suspended particulate matter (PM), and greenhouse gas (GHG). These pollutants can damage property and vegetation, and cause serious health problems in humans and animals. In addition, air pollutants include toxic air contaminants, such as acids, hexavalent chromium, and ammonia, which have direct and indirect effects on human health. Toxic air contaminants can lead to cancer and other chronic and acute ailments.

Corrosives Any liquid that corrodes steel greater than a quarter-inch per year, and aqueous wastes with a pH of 2.0 or less or 12.5 or more.

Greenhouse gas (GHG) Includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases (sulfur hexafluoride (SF₆), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs).

Ozone-depleting chemicals Chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), and other substances that are used widely as refrigerants, insulating foams, and solvents.

Particulate matter Small particles of solid or liquid matter suspended in a gas or liquid, which may adversely affect human health and the environment.

Volatile organic compounds (VOC) Any volatile compound of carbon, excluding the following: methane, carbon monoxide, and carbon dioxide, carbonic acids, metallic carbides or carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions.

Examples of Typical Processes and Air Pollutants

Processes	Air Pollutants
Cutting/drilling	Dust/particulates
Surface treatment	Acid/alkaline fog and hazardous air pollutants*
Etching	Ammonia, acid fog, and hazardous air pollutants
Electroplating/anodizing	Acid fog, particulates, and hazardous air pollutants
HVAC and refrigeration systems	GHGs
Welding/grinding/polishing	Dust, particulates, and fumes
Painting and coating	VOCs, acid mists, aerosols, and particulates
Boiler/generator operations	Sulfur dioxide, nitrous oxide, and particulate matter/dust, carbon monoxide, and GHG (CO ₂)
Incinerating/burning	Sulfur dioxide, nitrous oxide, particulate matter/dust, dioxins and other hazardous air pollutants, carbon monoxide, and GHG (CO ₂)

*Hazardous air pollutants: Pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples include dioxin and toluene, and metals such as cadmium, mercury, chromium, and lead compounds. Also known as toxic air pollutants.

Definitions

Hazardous air pollutants (HAPs) Pollutants that are known or suspected to cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental effects. Examples include dioxin and toluene, and metals such as cadmium, mercury, chromium, and lead compounds. Also known as toxic air pollutants.

Mass rate Flow rate of a specific pollutant species in an air emission stream over a specified time period.

Regulated Any applicable air quality standard established by a local and/or national regulatory agency.

Supplier shall develop and maintain an air emissions source inventory.

- The inventory shall include the composition and **mass rate** of emissions for each air emissions source.
- Supplier shall revise the inventory after any changes to the production or process that are likely to affect air emissions.
- Supplier shall review the inventory annually.
- Supplier shall maintain the inventory in electronic form and make it immediately available for review by Apple upon its request.

4.2 Control of Regulated Air Emissions

Supplier shall report and/or register air emissions sources in accordance with applicable laws and regulations.

Supplier shall install and maintain appropriate air emissions–control devices for **regulated** air emissions, and all control plans must be approved or accepted by all applicable regulatory agencies. Examples of processes and relevant air emissions–control devices are identified in the table on the following page.

Examples of Typical Processes and Air Emissions Control Devices

Processes	Air Emissions Control Devices
Cutting/drilling/polishing	Cyclone/baghouse dust collector (Not applicable for combustible dusts. For combustible dust, refer to Apple's Combustible Dust Standard.)
Surface treatment	Wet scrubber (alkaline/acid solution)
Etching	Wet scrubber (alkaline/acid solution)
Electroplating	Wet scrubber (alkaline solution)
Painting and coating	Wet scrubber (alkaline solution) and/or activated carbon filter
Boiler/generator operations	Wet scrubber (alkaline solution)

Supplier shall report air-emissions discharge points to each applicable regulatory agency. The air-emissions discharge points shall also be reported to Apple for audit purposes and updated once a year to reflect any changes in discharge points during the previous year.

Supplier shall handle, store, and dispose of residues and/or wastes generated from air emissions–control devices in accordance with applicable laws and regulations and as per the Apple Hazardous Waste Management Standard.

4.3 Evaluation and Monitoring of Air Emissions

Supplier shall develop a program to monitor the composition of air emissions and calculate mass rates for all sources identified in the air emissions inventory.

Supplier shall perform annual analytical testing of air emissions to ensure compliance with applicable regulatory requirements and this Standard.

Air emissions samples shall be collected under typical operating conditions and tested for parameters identified as potential air pollutants.

Air emissions shall be controlled below any regulated emission levels.

Supplier shall submit air emissions monitoring reports as required by each applicable regulatory agency and shall obtain all required permits to maintain regulatory compliance. In addition, the monitoring reports shall be maintained in electronic form and made available to Apple for review upon its request.

4.4 Emergency Response

Supplier shall implement emergency preparedness and response actions in the event of any air emissions–control system malfunctions, failures, maintenance, and/or modifications, as follows:

- For hazardous air pollutants (HAPs), **process equipment** vented to the air emissions–control system shall suspend operations immediately to prevent uncontrolled air emissions from escaping into the atmosphere. Supplier shall install and maintain an automatic shutdown system in which any HAP-emitting operations are ceased when the flow from these operations is diverted away from the air emissions–control system—for example, to a bypass line—regardless of circumstances or whether the air emissions–control system is shut down or fails.
- For non-hazardous air pollutants, process equipment vented to the air emissions control system shall suspend operations within 72 hours if no corrective action has been taken to prevent uncontrolled air emissions from escaping into the atmosphere, unless suspension is required sooner by applicable regulations.

Upon receipt of any community complaints, Supplier shall conduct air emissions monitoring to verify the air-emissions status and implement corrective actions, if any, in a timely manner.

Upon receipt of any **Notice of Violation** from the authorities, Supplier shall communicate with the appropriate regulatory agencies and/or the authorities in a timely manner to inform all relevant parties about the violations, and promptly take corrective actions or as otherwise instructed by the authorities.

Supplier shall notify Apple within 7 days and notify all appropriate regulatory and other agencies as required by applicable regulations if an **unusual environmental event** occurs. In both cases (hazardous or non-hazardous air emissions), Supplier shall identify the probable cause of the unusual environmental event and any corrective or preventive actions that were taken.

4.5 Operations and Maintenance

Supplier shall have all required environmental approvals and permits for its current operations.

Supplier shall plan and provide adequate time to update current environmental approvals and permits for any **alteration** that may change the environmental impact of Supplier’s operations.

Supplier’s pollution-control technologies shall be operational prior to Supplier generating any pollutants.

Supplier shall plan and provide adequate time to implement changes and obtain approvals for any alteration that may change air emissions sources, composition of air emissions, Mass Rate, air emissions–control technology, or air emissions monitoring requirements.

Definitions

Alteration Any change to a production or other process, management of waste, volume of waste, or the addition of other chemical substances.

Notice of Violation (NOV) A written method of alleging: 1) a violation that does not qualify as a minor violation for which a “Notice to Comply” is the only allowable means of citation, or 2) minor violation that is not corrected within the time required.

Process equipment The machines or equipment that use or generate the pollutant substance linked to the air emissions–control systems.

Unusual environmental event Include but are not limited to process equipment upsets (for example, increased load), natural disasters, emission control–system breakdowns, accidents, and power failures. These events lead to failed emission-control systems and emissions of air pollutants in excess of permitted limits.

Supplier shall develop operating and preventive maintenance programs for all air emissions-generating equipment, air emissions-control devices, and air emissions monitoring equipment. The programs shall include the following:

- Clearly defined and documented worker responsibilities and training requirements for the operation, inspection, and maintenance of the air emissions-control systems.
- Standard operating procedures for preventive maintenance that incorporate the relevant manufacturers' specifications, recommendations, and standard accepted practices.
- Identified and documented key parameters for monitoring effectiveness of the air emissions-control system and determining the frequency of routine inspections based on regulatory and/or permit requirements, preventive maintenance requirements, and other factors to ensure that the equipment is maintained in good working order. The inspection plan shall cover all shifts during typical facility operations.
- Documented operating procedures for shutting down air emissions-control systems. Before any air-emissions-control system is shut down for any planned reason—for example, maintenance breakdown—process equipment vented to the air emissions-control system shall be suspended and put into a state that prevents air emissions from being released. Associated process equipment may resume operations only when the air emissions control system is operating properly.

Supplier shall conduct periodic inspection of air emissions-control devices to identify and fix any operational deficiencies. A log of inspection and maintenance issues identified and fixed shall be maintained.

Supplier shall identify a specific individual or individuals within each facility who will be responsible for all aspects of air-emissions management, including maintenance and inspection of air emissions-control devices, monitoring of air emissions, and emergency response.

Supplier shall provide training per local and national requirements for the workers involved in the maintenance and inspection of the related air emissions-control systems. Workers shall receive the following training in addition to all other required training or instruction:

- Identification and understanding of air emissions source locations, exhaust stacks, and applicable air emissions-control technology.
- Appropriate response procedures in case of ventilation or failure of air emissions-control system.
- Specific operating requirements and protocol training for maintenance of air emissions-control devices deployed at the facility.

4.6 Documentation

Supplier shall retain written copies of air emissions data and documentation for the previous 5 years or as per local regulatory requirements, whichever is longer. All air emissions records and documentation shall be made available to Apple for review upon its request. Required documents to be retained include but are not limited to:

- Air emissions source inventories
- Air emissions source testing and monitoring results
- Licenses, permits, and other regulatory registration documents
- Expansion, renovation, or new air emissions–control device records, permits or regulatory correspondence
- Written records of air emissions–related communications with external parties, including but not limited to community groups, regulatory agencies, and local authorities
- All inspection and maintenance records
- Reports of unusual environmental events, and responsive corrective actions taken
- Records of any corrective actions, rectifications, or follow-up actions taken for any deficiencies, complaints, Notices of Violations, and the like

Supplier shall retain training records for the previous 5 years for personnel assigned to the operation, inspection, and maintenance of the air emissions control systems or as per applicable regulations, whichever is longer.

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Supplier Responsibility Standard

Boundary Noise Management

1.0 Purpose

This Boundary Noise Management Standard (“Standard”) supplements the Environment section of the Apple Supplier Code of Conduct (the “Code”) to minimize the adverse impacts to the environment from boundary noise. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Boundary noise The noise levels generated by stationary industrial or construction equipment measured along the boundaries of an industrial enterprise.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services.

3.0 Supplier Code of Conduct Requirements

Supplier shall identify, control, monitor, and reduce noise generated by the facility that affects boundary noise levels.

4.0 Supplier Responsibility Standards

4.1 Identification of Boundary Noise

Supplier shall use a qualified third-party consultant to monitor **boundary noise** to verify compliance with all applicable regulations. The third-party consultant shall use approved, calibrated sound-level meters as per applicable regulations to monitor for boundary noise and shall prepare a boundary noise report.

Supplier shall use the boundary noise report to identify operations that contribute to boundary noise, and develop an inventory of such operations and/or equipment. This inventory shall include information such as ranges of noise produced under normal operating conditions and prevention and control technologies to reduce boundary noise levels as per applicable regulations.

Supplier shall update the inventory if there are any changes to production, equipment, or operating schedules that are likely to affect boundary noise levels.

4.2 Control of Boundary Noise Levels

Supplier shall install and maintain appropriate boundary-noise-control devices to control boundary noise levels per applicable regulations. For installation and monitoring, boundary noise control methodology shall be designed by a qualified person to achieve boundary noise levels as per applicable regulations.

Supplier shall monitor boundary noise for changes to the **receiving land use category** and comply with applicable regulations.

4.3 Evaluation and Monitoring

Supplier shall evaluate boundary noise levels on an annual basis, upon changes to Receiving Land Use Category in the neighborhood of the facility, or if there are any community noise complaints. The evaluation shall cover the following:

- Monitoring applicable regulatory standard(s) for changes.
- Periodic inspections of boundary noise sources, including their location, installation, operation rules, control measures, and maintenance logs.

Supplier shall meet the boundary noise-level criteria in the table below or the applicable local standards, whichever is more stringent along the facility boundary.

Boundary Noise Level at Facility Boundary

Receiving Land Use Category	Day Time Level (L ₅₀) (6AM–10PM)	Night Time Level (L ₅₀) (10PM– 6AM)	Night Time (L _{MAX})
Noise-sensitive areas, low-density residential areas, institutional areas, school, hospital, and worship areas	50 dBA	40 dBA	55 dBA
Suburban medium-density residential areas, public spaces, parks, and recreational areas	55 dBA	45 dBA	60 dBA
Urban high-density residential areas and designated mixed residential-commercial	60 dBA	50 dBA	65 dBA
Commercial zones	65 dBA	55 dBA	70 dBA
Industrial zones	70 dBA	60 dBA	75 dBA

dB (A) or dBA Decibel (dB) is the noise unit measured directly by a sound-level meter. The dBA—the A-weighted sound level—corresponds closely to the response of the human ear.

L_{MAX} The maximum one-second noise value measured during a given noise-measurement period.

L_{MIN} The minimum one-second noise value measured during a given noise-measurement period.

LEQ The energy average sound level in dBA measured during a given time interval. It is the “equivalent” constant sound level that would have to be produced by a given constant source to equal the acoustic energy contained in the fluctuating or time-varying sound level measured during the same interval.

L₅₀ The median sound level during the measurement interval: 50 percent of the measured levels were above this value and 50 percent were at or below this level.

Definitions

Receiving land use category Defined area or region of a generally consistent land use where the ambient noise levels are generally similar.

4.4 Operation and Maintenance

Supplier shall develop and maintain a plan to manage boundary noise that includes source identification, evaluation, and monitoring of boundary noise, and control as per applicable regulations.

Supplier shall perform corrective and preventive actions to address boundary noise permit noncompliance in a timely manner or as specified by local authorities including, but not limited to, installation of boundary noise-control devices and/or modification of the facility operating schedules for noise-generating equipment.

Supplier shall provide appropriate training for the employees involved in maintaining and inspecting boundary noise-control devices.

4.5 Documentation

Supplier shall retain current copies of necessary boundary noise permits or licenses.

Supplier shall retain written copies of documents and records associated with boundary noise levels, including boundary noise reports for at least 5 years, and maintain these copies for the period when the equipment is in operation.

Supplier shall maintain records of deviations from the applicable regulations or permits/licenses, and corrective actions taken to address deficiencies or noncompliance.

Supplier shall retain any documentation related to preventive maintenance completed on boundary noise-control equipment.

All boundary noise reports and documentation shall be made available to Apple for review upon its request.

For more information about Apple's Supplier Responsibility Program, visit www.apple.com/supplier-responsibility.

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Supplier Responsibility Standard

Conflict Minerals

1.0 Purpose

This Conflict Minerals Standard (“Standard”) supplements Apple’s Supplier Code of Conduct (the “Code”) by providing additional detail regarding the use of materials for **goods** sold to Apple or Apple’s Suppliers. Apple’s Suppliers must meet this Standard to be in compliance with the Code. The terms and conditions of the Code are incorporated in this Standard, and this Standard shall govern and be deemed to modify the Code if there are any conflicting provisions.

Definitions

Goods Any material, part, sub-component, component, or product that is to be incorporated into an Apple product.

2.0 Scope

This Standard applies to all Apple suppliers, their subcontractors, and their next-tier suppliers (each a “Supplier”; collectively, “Suppliers”) producing goods for use in Apple’s products or providing services in connection with Apple’s products or services. This Standard describes restrictions applicable to all goods to ensure that the materials, components and procurement and production processes for goods sold to Apple or Apple’s Suppliers comply with the provisions of the Apple Supplier Code of Conduct. Any questions regarding this Standard should be directed to the Supplier Responsibility Group at conflictfree@apple.com.

3.0 Supplier Code of Conduct Requirements

Suppliers shall exercise due diligence in accordance with the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas (the “OECD Guidance”), on their entire supply chain with respect to the sourcing of all tantalum, tin, tungsten, and gold contained in their products, to determine whether those metals are from the Democratic Republic of the Congo (the “DRC”) or any adjoining country and, if so, to determine whether those metals directly or indirectly financed or benefited armed groups that are perpetrators of serious human rights abuses in the DRC or an adjoining country. Countries that adjoin the DRC are Angola, Burundi, Central African Republic, the Republic of the Congo, Rwanda, South Sudan, Tanzania, Uganda and Zambia.

Suppliers shall satisfy the reporting and sourcing requirements of this Standard. Apple reserves the right to audit Suppliers for compliance as described in the Apple Supplier Code of Conduct.

In addition to the requirements in this Standard, all goods must comply with the Apple Regulated Substances Specification, 069-0135, that defines additional restrictions on materials used in Apple’s products, accessories, packaging, and manufacturing processes.

4.0 Supplier Responsibility Standards

4.1 Conflict Minerals Restriction

Suppliers that produce goods containing tantalum, tin, tungsten, or gold must adopt a conflict minerals policy that is consistent with the Apple Supplier Code of Conduct and the OECD Guidance. Suppliers must distribute their conflict minerals policy to all of their subcontractors and suppliers that provide materials for the manufacture of goods.

Suppliers may only use tantalum, tin, tungsten or gold in goods if the Supplier can reasonably demonstrate that it has exercised due diligence in accordance with the OECD Guidance regarding the source and chain of custody of such metals, and satisfied the reporting and sourcing requirements of this Standard.

If the Supplier cannot reasonably demonstrate that (i) it has exercised due diligence in accordance with the OECD Guidance with respect to any tantalum, tin, tungsten or gold in any goods, and (ii) it has satisfied the reporting and sourcing requirements of this Standard, with respect to such affected metal(s), then the Supplier must not use the affected metal(s) in any goods.

The Supplier must provide to Apple reasonable documentary evidence of the Supplier's reporting, sourcing and due diligence activities, and shall make such records available to Apple upon request.

Suppliers must distribute this Standard to all procurement personnel and factory management for all of the Supplier's facilities producing goods and must ensure their facilities' compliance with the obligations and requirements in this Standard. Suppliers that wish to request support or additional training from Apple may contact conflictfree@apple.com.

4.2 Due Diligence

The OECD Guidance establishes a framework for exercising due diligence to determine the source and chain of custody of tantalum, tin, tungsten and gold. Relevant due diligence procedures include, but are not limited to those listed below, in addition to the specified reporting and sourcing requirements:

- Suppliers must map their supply chain back to the point at which the metal was refined by the mineral processor (typically a smelter or refiner). This must be reported to Apple annually by completing the Conflict-Free Sourcing Initiative's Conflict Minerals Reporting Template (the "CMRT") to identify the smelters and refiners and, where available, country of origin of the tantalum, tin, tungsten, or gold used by the Supplier. This report must include complete information with respect to all of the Supplier's subcontractors and suppliers and all metal smelters and refiners. Any changes or exceptions affecting the information disclosed in the CMRT within the regular annual reporting period must be promptly reported to Apple.
- Suppliers must only source tantalum, tin, tungsten and/or gold, and products and materials containing such metals, from smelters and refiners that (i) have been verified as "conflict-free" compliant, or (ii) have publicly demonstrated that they are progressing towards such conflict-free verification by an independent third-party organization or program recognized by Apple. A smelter can publicly demonstrate its progress towards conflict-free verification by engaging with an independent third-party audit program recognized by Apple and

taking meaningful, substantive steps to follow the program's requirements for achieving conflict free recognition, including to be publicly listed on its website(s). Recognized independent third-party audit programs currently include the Conflict-Free Sourcing Initiative's Conflict-Free Smelter Program, the London Bullion Market Association, and the Responsible Jewellery Council. Apple may recognize other organizations and programs from time to time by updating this Standard or by providing notice to Suppliers.

- If a Supplier becomes aware that it may have sourced tantalum, tin, tungsten or gold that is from the DRC or any adjoining country and that directly or indirectly financed or benefited armed groups that are perpetrators of serious human rights abuses in the DRC or an adjoining country, the Supplier must immediately notify Apple in writing at conflictfree@apple.com. Such notification must include reasonable tracking information to identify which goods may contain the affected metals. Additional information and procedures will be provided to the Supplier following such notification.
- Suppliers must promptly notify Apple of all failures to meet these reporting, sourcing, and due diligence requirements, including, without limitation, any delay in providing a completed CMRT on a timely basis.

For more information about Apple's Supplier Responsibility Program, visit www.apple.com/supplier-responsibility.

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