Management Guideline on Hazardous Substances and Sustainable Raw Materials

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I. General Provisions

1. Purpose

The guideline applies to the manufacturing facilities of all ASE Holdings' (ASEH) subsidiaries worldwide. Each subsidiary is required to establish a comprehensive management systems for hazardous substance and raw material management at their respective manufacturing facilities. This will encompass a systematic process of identification, evaluation, control and disclosure of all substances used in products, raw materials, and the manufacturing processes to ensure compliance with international trends/laws/standards and customer/stakeholder requirements. At ASEH, we are deeply committed to sustainability development and the mitigation of negative impacts on the environment and human health. To that end, we continue to focus on identifying alternative substances and phasing out hazardous substances through internal mechanisms for risk assessment, alternative or sustainable materials, and continuous improvement as well as external partnerships with industry associations through research and funding.

2. Scope

The guideline applies to the manufacturing facilities of all ASE Holdings' (ASEH) subsidiaries worldwide, and cover substances and materials (including direct materials, indirect materials, and chemicals) intended for use in the manufacturing process, with the exception of prototypes or those subject to special conditions (including but not limited to military specifications). As the type of substances and materials used vary across each manufacturing facility, detailed records of controlled substances and materials should be maintained in the internal management regulations or the standard operating procedures (SOP) of each facility.

II. Terms and Definitions

1. Substance

Chemical elements, compounds, or polymers.

2. Material

Direct materials, indirect materials, and chemicals.

3. Hazardous Substance

Products, raw materials, processes or services containing any substance that poses potential risks or adverse impact on health, the environment or product compliance; and those substances that are subject to restrictions, prohibition and regulatory control according to international regulations, industry standards or customer requirements.

4. Prohibited Substance

For any substance that has been banned by international bodies or stakeholder groups, third-party testing should confirm that no traces of the substance is detected in products or manufacturing processes.

5. Restricted Substance

For any substance that has been restricted for use by international bodies or stakeholder groups, third-party testing should confirm that the amount used is within the permissible concentration limit for products or manufacturing processes.

6. Controlled Substance

Any substance on the list requiring monitoring and control, or being phased out in accordance with the regulations and standards of international bodies or stakeholder groups.

7. Sustainable Raw Material

Sustainable raw material that reduce environmental impact, promote circularity and comply with social, environmental and regulatory requirements throughout their life cycle (including extraction, manufacturing, use and end-of-life disposal). Their characteristics may include but are not limited to the following:

(1) minimal environmental and ecological impact.

(2) can be recycled, recyclable or reusable, and biodegradable, ensuring resource efficiency and circularity.

(3) sustainably and responsibly sourced to prevent deforestation, damage to biodiversity-sensitive areas, and the use of conflict minerals.

(4) human- and eco-friendly, containing zero or reduced amounts of hazardous substances.

III. Substance Management: Guideline Requirements

1. Establish a robust SOP.

All manufacturing sites must establish SOPs for substance identification including but not limited to hazardous, prohibited, restricted, and controlled substances.

A hazardous substance process management must be established according to the IECQ QC080000 (International Electrotechnical Commission Quality Assessment System) and verified by a locally accredited third-party organization to maintain its system integrity.

2. Create a check list of substances subject to management

Manufacturing sites must create their own list of substances that must be managed, granting due consideration to the following needs:

(1) The inclusion of all substances that require proper declaration, as provided in IEC 62474.
(2) Prohibited, restricted, and controlled substances in products or manufacturing processes must meet domestic and international regulatory requirements, including but not limited to EU RoHS, EU REACH, US TSCA, and any other applicable regulations. For details, please refer to Chapter VI.
(3) Stakeholder influence and international regulatory trends may further subject certain substances to stricter control measures .
(4) The list must be updated over time to reflect changes in international trends/laws/standards and customer/stakeholder requirements.

3. Incorporate risk management.

Annual risk assessments shall be conducted to determine risks related, but not limited to changes in regulations/customer requirements, substances of very high concern (SVHCs), supply disruption, substitution of alternative materials, and reduced use or elimination of hazardous substances.

4. Establish a governing organization.

Clearly defined roles and responsibilities, based on the organizational structure and operational needs of each site, must be established for substance management and operational procedures.

5. Provide regular educational training.

Training programs (including changes in management requirements) on substance management and operations should be carried out to ensure that relevant employees (current and new hires) are fully

equipped to carry out their duties.

6. Conduct internal audits.

Internal audits shall be performed annually to ensure that the management and monitoring of substances are conducted according to schedule.

7. R&D and collaboration.

Continuous investments in research, development and collaboration with academic institutions and industry associations are essential to the development of alternative substances to replace hazardous substances.

8. Formulate system for documenting and operating procedures.

A detailed system for documenting and operating procedures shall be developed in compliance with international trends/laws/standards and customer/stakeholder requirements.

9. Data management and document storage.

Data related to substance management shall be properly stored and fully traceable. The retention period should be at least 7 years, or at a minimum, meet while not exceeding the requirements stipulated in internal and regulatory policies.

IV. Sustainable Raw Material Management: Guideline Requirements

A robust SOP shall be established, and timely adjusted to align with international trends, regulatory requirements, customer needs and stakeholder concerns.

The SOP shall be developed in accordance to the framework described in Chapter III, Substance Management: Guideline Requirements, including, but not be limited to the following procedures:

(1) request for identification and suitability assessment
(2) raw material identification and information collection
(3) risk and opportunity assessment
(4) organizational responsibilities and training
(5) document management
(6) continuous improvement and performance tracking

The scope, methodology and standards shall be established in accordance to the types of product, as well as customer and regulatory requirements of each manufacturing site.

V. Information Disclosure

Relevant information and updates on our substance and material management of all manufacturing sites are collected and disclosed in our annual ESG report in accordance with applicable sustainability reporting guidelines (including but not limited to GRI and SASB).

VI. References

- (Guidance) EICTA, CECED and EERA Joint Position : Guidance on implementing article 11 of Directive 2002/96(EC) concerning information for treatment facilities
- (Standard) IEC 61249-2-21
- (Standard) IPC-4101
- (Standard) JEDEC JS709
- [Canada] Prohibition of Certain Toxic Substances Regulations SOR/2012-285 and its amendment
- [Canada] Products containing Mercury Regulations SOR/2014-254
- [China] Law Measures for Restriction of the Use of Hazardous Substances in Electrical Appliances and Electronic Products
- [China] Limitation of mercury, cadmium and lead contents for alkaline and non-alkaline zinc manganese dioxide batteries GB 24427-2009
- [EU] Battery Directive 2023/1542
- [EU] Commission Regulation (EU) 2019/2021 laying down ecodesign requirements for electronic displays
- [EU] Directive 2013/59/Euratom
- [EU] Ecodesign requirements (EU) 2021/341 and (EU) 2019/424 pursuant to Directive 2009/125/EC
- [EU] Persistent Organic Pollutants (POPs) Regulation (EU) 2019/1021
- [EU] REACH Regulation (EC) No.1907/2006 ANNEX XVII
- [EU] REACH Regulation (EC) No.1907/2006 Candidate List for Authorisation
- [EU] REGULATION (EU) No 517/2014 on fluorinated greenhouse gases
- [EU] Regulation on substances that deplete the ozone layer (EC) No. 1005/2009
- [EU] RoHS Directive 2011/65/EU and its amendments
- [France] Anti-Waste and Circular Economy Law 2020-105
- [Japan] Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc.
- [Japan] Law Concerning Prevention from Radiation Hazards due to Radio-Isotopes,

etc.

- [Japan] Law concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures
- [Japan] Law for the Promotion of Effective Utilization of Resources
- [Japan] Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material, and Reactors
- [Korea (the Republic of)] Persistent Organic Pollutants Control Act
- [Korea (the Republic of)] Quality Management and Manufactured Product Safety Management Law (Battery
- Regulation)
- [Norway] Regulations relating to restrictions on the manufacture, import, export, sale and use of chemicals and other products hazardous to health and the environment (Consumer Product Regulations) FOR-2004-06-01-922
- [Switzerland] Act of Reduction of Risks in Treatment of Specified Hazardous Substances, Preparations, and Articles in Switzerland (ChemRRV) Swiss Ordinance 814.81
- [Taiwan] Restrictions on the Manufacture, Import, and Sale of Dry Cell Batteries
- [USA California] Electronic Waste Recycling Act (California RoHS) SB 20, amended by SB 50 and AB 575
- [USA California] Perchlorate Contamination Prevention Act of 2003 AB 826
- [USA California] Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65)
- [USA Maine] Maine Public Law, Chapter 447 (LD 1503, 2021) PFAS regulation
- [USA New York] Environmental Conservation Law, Battery management and disposal § 27-0719
- [USA] Clean Air Act

Data source: IEC 62474 Declarable Substance List and Basis Description. For the latest regulatory requirements, please visit the official website (https://std.iec.ch/iec62474/iec62474.nsf/welcome?openpage).