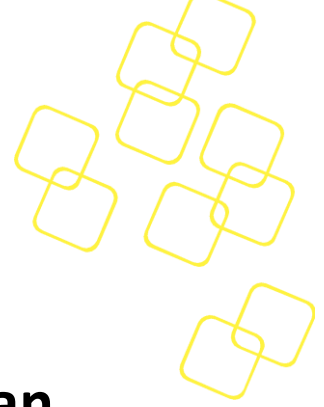
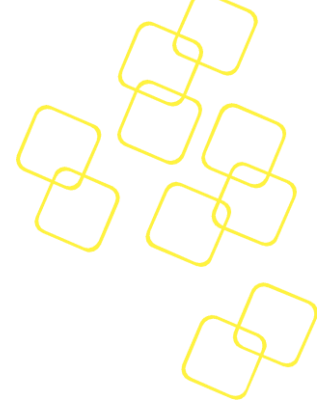




Advantech Green Policy_ Hazardous Substance Reduction Plan

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— 、 Commitment to Hazardous Substance Management

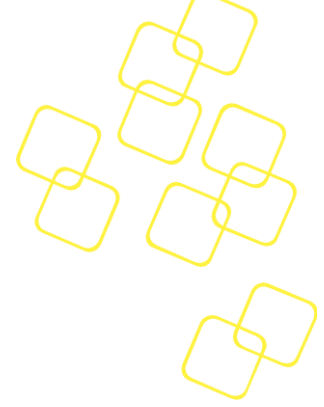
Advantech is committed to complying with global environmental regulations and relevant industry standards while actively promoting a comprehensive hazardous substance management system. In response to increasingly stringent environmental and safety requirements, we continue to inventory, evaluate, and control substances of concern in our products and manufacturing processes to reduce potential risks to human health and the environment.

Following the precautionary principle, we implement our hazardous substance reduction and management plans through green supply chain collaboration, material substitution, risk assessment, and employee training. At the same time, Advantech is dedicated to enhancing transparency, ensuring that all relevant personnel understand their responsibilities and response measures. We continue to improve risk control technologies and systems to achieve multiple goals: environmental sustainability, employee safety, and regulatory compliance.

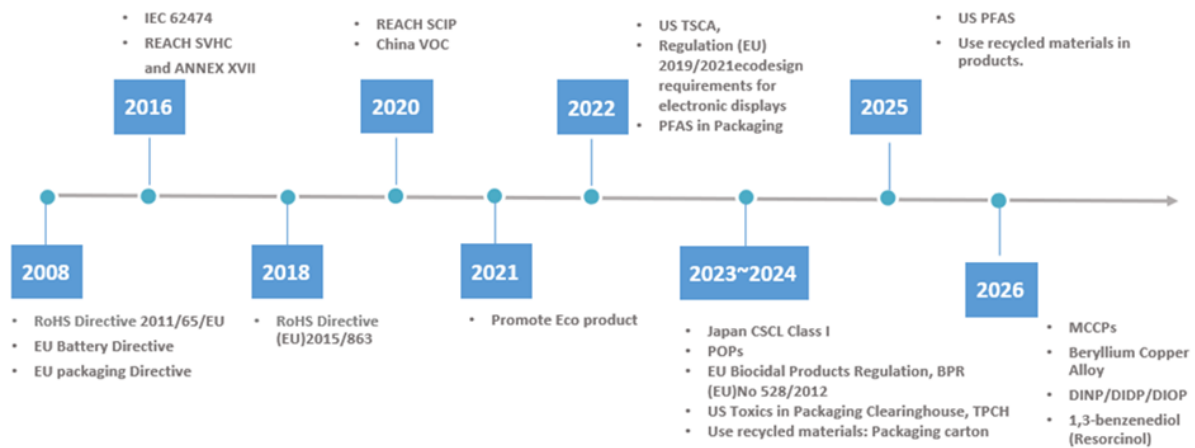
Advantech continuously promotes material compliance policies to ensure that all raw materials used in our products are 100% compliant with international environmental regulations (such as RoHS and REACH). We manage material compliance in accordance with the IEC 62474 standard and Advantech's GPM controlled substances standard. All materials used in Advantech products are disclosed according to IEC 62474 requirements, covering 100% of our product revenue—demonstrating our high level of environmental management and supply chain transparency.

Furthermore, in accordance with Advantech's GPM Regulated Substances Standard, the use of regulated substances is continuously monitored. The revenue share of products containing Advantech restricted substances remains at 0%, indicating full compliance of all product raw materials with applicable regulations and internal management requirements.

Advantech will continue to take action to fulfill its corporate social responsibility, advancing toward green manufacturing and low-Hazardous product design, and working hand in hand with stakeholders to create a sustainable future.



二、Hazardous Substance Reduction Plan



■ Major initiatives

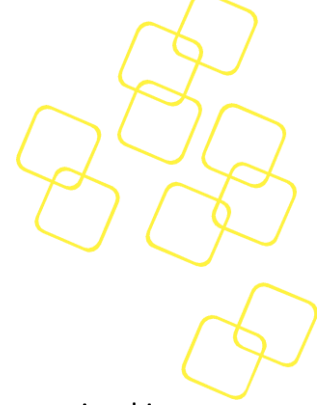
Advantech is committed to reducing hazardous substances in its products and manufacturing processes. Based on the precautionary principle and a robust risk management framework, we continuously eliminate or substitute substances that pose potential risks to human health and the environment. Major initiatives include:

- (1) Inventory and risk assessment of substances of concern: We regularly identify and evaluate potential hazardous substances based on REACH SVHC, RoHS, IEC 62474, etc., and integrate them into our internal control and substitution assessment list.
- (2) Raw material and process optimization: We prioritize the use of low-Hazardous materials compliant with environmental regulations and work with suppliers to phase out high-risk substances.
- (3) Green eco design implementation: During product development, we apply material selection guidelines that emphasize the use of low-Hazardous and recycled materials to achieve source reduction.
- (4) Supply chain collaboration and training: We work closely with suppliers to implement substitution plans and provide regular training on hazardous substance management.
- (5) Enhanced internal standards: In addition to complying with international regulations, Advantech continuously expands its GPM controlled substances list and proactively reduces substances that are not yet regulated but may pose potential risks.

■ Definition and Management Scope of Hazardous Substances

Definition:

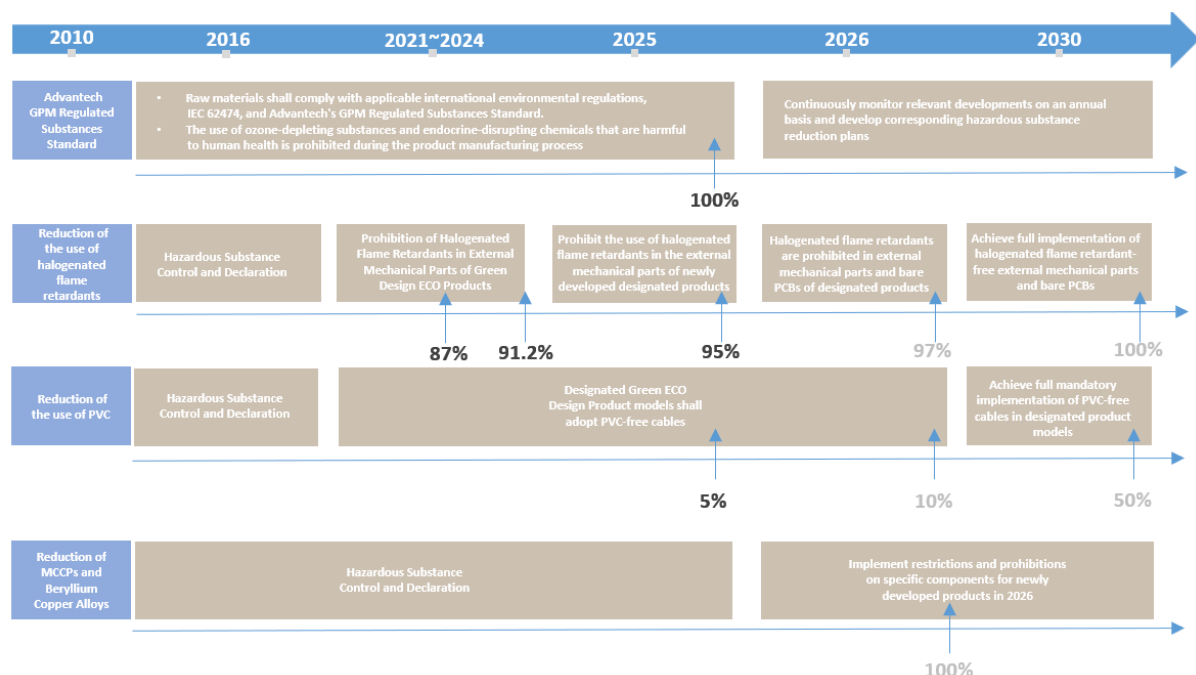
Chemical substances that are listed as prohibited, restricted, or subject to monitoring and management in accordance with Advantech's Regulated Substances Standard, international environmental trends, and applicable regulatory requirements.



Management Scope:

It refers to components, materials, and other items (e.g., auxiliary consumables) contained in products designed or manufactured by Advantech or commissioned by Advantech, as well as chemicals used during the manufacturing process.

■ Annual Actions, Performance, and Future Targets

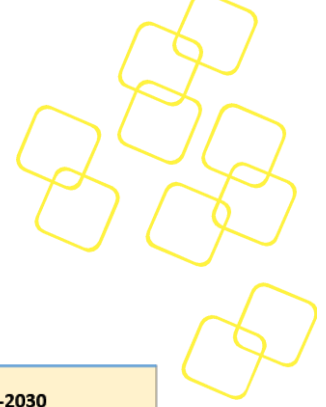


The current strategy focuses on substituting specific regulated substances by introducing alternative materials to gradually phase out the use of designated controlled substances. The targets listed below represent both the reduction targets for specific regulated substances and the implementation targets for alternative materials, and serve as the basis for the Company's substance substitution management program.

1. Substances Regulated under Advantech's Regulated Substances Standard

Since 2010, Advantech has continuously strengthened its green product and material compliance management, progressively establishing a comprehensive management system covering hazardous substance management, supplier material disclosure, and product environmental regulatory compliance. Through ongoing refinement of management processes and enhanced supply chain transparency, Advantech has achieved 100% raw material regulatory compliance rate and 100% key substance disclosure coverage.

Looking ahead to 2026–2030, Advantech will continue to focus on regulatory compliance, information transparency, and sustainable material application, driving the digitalization of material management and the adoption of low environmental impact materials, while working closely with the supply chain toward sustainable development goals.



Raw Material Compliance Management Performance and Targets

Indicator	2010~ Management System Establishment Phase	2025 Performance Results	2026-2030 Goal
Regulatory Compliance Rate of Raw Materials (RoHS 、 REACH...etc.)	- Establish a Hazardous Substances Management System - Establish a Supplier Material Declaration Mechanism - Implement IEC 62474 requirements - Establish the GPM Regulated Substances Standard	100%	Maintain 100% compliance rate
IEC 62474 Declarable Substances Disclosure Rate		100%	Maintain 100% compliance rate
Revenue Share of Products Containing Advantech Restricted Substances		0%	Maintain at 0%
Supplier Material Declaration Rate		100%	Maintain 100% compliance and continuously improve management efficiency
The use of ozone-depleting substances and endocrine-disrupting chemicals is prohibited during the manufacturing process.		100%	Maintain 100% compliance rate
Material Traceability Management Mechanism		GPMS management	Continuous digitalization and improvement

2. Reduce the use of halogenated flame retardants through the adoption of alternative materials.

Advantech is progressively expanding the application of halogen-free materials, starting with Green Design Products and newly developed models, and gradually extending the implementation to external mechanical parts and bare PCBs of designated products. Ultimately, Advantech aims to fully eliminate the use of halogenated flame retardants in external mechanical parts and bare PCBs, in order to reduce potential environmental and human health impacts associated with its products.

Reduction of the use of halogenated flame retardants

Phased Implementation Targets and Scope	Target Year	Goal	Performance Results
Established based on Advantech's GPM Regulated Substances Standard for monitoring and declaration.	2010~2021	-	Declaration only
Prohibition of Halogenated Flame Retardants in External Mechanical Parts of Green Design ECO Products.	2021~2023	-	87%
	2024	90%	91.2%
Prohibit the use of halogenated flame retardants in the external mechanical parts of newly developed designated products.	2025	95%	95%
Halogenated flame retardants are prohibited in external mechanical parts and bare PCBs of designated products.	2026	97%	-
Achieve full implementation of halogenated flame retardant-free external mechanical parts and bare PCBs.	2030	100%	-

Note: The above targets represent both the reduction of specific regulated substances and the adoption of alternative materials. As the implementation rate of alternative materials increases, the use of specific regulated substances will decrease accordingly. Therefore, the same target values are used as the basis for management and performance tracking.

3. PVC Reduction-PVC-Free Cable Implementation for Specific Product Lines

Advantech has initiated a PVC-free cable implementation program for selected product lines. This program prioritizes the substitution of PVC materials in specific cable types and use cases, aiming to gradually increase the adoption of lower-risk, environmentally friendly materials.



Reduction of the use of PVC

Phased Implementation Targets and Scope	Target Year	Goal	Performance Results
Established based on Advantech's GPM Regulated Substances Standard for monitoring and declaration.	2010~2024	-	Declaration only
Designated Green ECO Design Product models shall adopt PVC-free cables.	2025	5%	5%
	2026	10%	-
Achieve full mandatory implementation of PVC-free cables in designated product models.	2030	50%	-

Note: The above targets represent both the reduction of specific regulated substances and the adoption of alternative materials. As the implementation rate of alternative materials increases, the use of specific regulated substances will decrease accordingly. Therefore, the same target values are used as the basis for management and performance tracking.

4. Reduction of Medium-Chain Chlorinated Paraffins (MCCPs) and Beryllium Copper through Material Substitution

In response to the 2026 prohibition requirements for beryllium copper alloys and medium-chain chlorinated paraffins (MCCPs), Advantech applies the precautionary principle by incorporating material selection guidelines at the early stage of product development. Priority is given to low-toxicity, low environmental impact, or non-toxic alternative materials, thereby reducing the risk of hazardous substance use at the source.

Reduction of MCCPs and Beryllium Copper Alloys

Phased Implementation Targets and Scope	Target Year	Goal	Performance Results
Established based on Advantech's GPM Regulated Substances Standard for monitoring and declaration.	2010~2025	-	Declaration only
Implement restrictions and prohibitions on specific components for newly developed products in 2026.	2026	100%	-

Note: The above targets represent both the reduction of specific regulated substances and the adoption of alternative materials. As the implementation rate of alternative materials increases, the use of specific regulated substances will decrease accordingly. Therefore, the same target values are used as the basis for management and performance tracking.

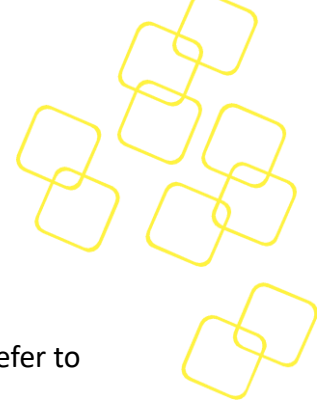
5. Alternatives to RoHS Exempted Substances and Materials

The issue of finding alternatives to substances covered under RoHS Exemptions is a key challenge in sustainable product design and electronic product development.

In 2024, Advantech successfully introduced the SOM-6894 embedded computer module as a showcase product free from any RoHS exempted materials.

Future Plan:

- Review and identify components in current products that rely on RoHS exemptions
- Evaluate technical feasibility and cost effectiveness of potential alternative materials
- Continue to monitor regulatory updates and amendments to the RoHS directive from the EU



Note 1: For detailed information on hazardous substance management, please refer to D-01-A018 Advantech GPM Restricted Substances Standard.

Note 2: Due to the absence of final regulatory details and implementation timelines regarding the expiration of RoHS exemption clauses in the European Union, significant uncertainty remains in material selection and substitution planning within the industry. To ensure alignment between product design and regulatory requirements, and to avoid redundant design efforts, material transitions, and additional cost burdens, the Company will continue to monitor developments in EU regulations. At the same time, it will evaluate the technical feasibility, regulatory compliance, and cost-effectiveness of alternative materials to appropriately plan subsequent implementation strategies.

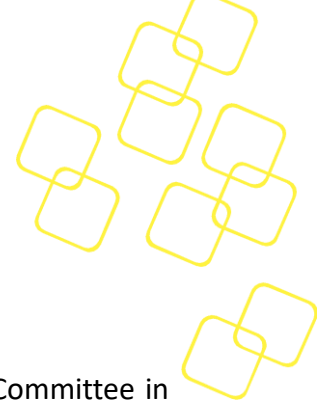
■ Hazardous Substance Reduction_Substitution and Management Strategies

Adhering to the precautionary principle, Advantech prioritizes the use of low-toxicity, low environmental impact, or non-toxic alternative materials at the early stage of product development. The Company progressively promotes the elimination of halogenated flame retardants in external mechanical parts and bare PCBs, the reduction of PVC usage, and the adoption of PVC-free cable designs in designated Green Design Product models. In addition, Advantech plans to phase out the use of beryllium copper alloys and medium-chain chlorinated paraffins (MCCPs) starting from 2026.

In terms of material substitution, priority is given to halogen-free flame-retardant materials. For PVC replacement, thermoplastic elastomers (TPE) or other PVC-free materials are preferentially evaluated. For beryllium copper, alternatives such as phosphor bronze or other non-beryllium alloys that meet product functional requirements are prioritized. For MCCPs, non-chlorinated flame retardants, chlorine-free plasticizers, or other low-toxicity alternative substances are preferred.

To accelerate the adoption of alternative materials, Advantech continues to develop a green material database to support R&D and procurement in material selection. The Company also collaborates with suppliers on the development, validation, and implementation assessment of alternative materials to ensure compliance with product quality, reliability, and regulatory requirements.

Meanwhile, all restricted substances are managed under Advantech's GPM Regulated Substances Standard and monitored through the Green Procurement Management System (GPMS). Through supplier material declarations, material verification, and product development review mechanisms, Advantech continuously strengthens hazardous substance reduction and green design management, thereby enhancing product environmental performance and supply chain sustainability competitiveness.



■ Green Design Committee and Incentive Program

In terms of internal management, Advantech has established a Green Design Committee in collaboration with Procurement, R&D, Corporate Engineering (CE), and other relevant departments to promote the selection of green materials, the adoption of alternative materials for hazardous substances, and sustainable supply chain management. The Committee also ensures the implementation of Advantech's supply chain management and alternative material management mechanisms.

By allocating resources across R&D and other relevant functions, Advantech has also established a Green Design Product Incentive Program to encourage employees to prioritize environmentally preferable alternative materials and develop environmentally friendly products with lower pollution and reduced hazardous substance content.

■ Government Collaboration Initiatives

In response to increasingly stringent international regulations and market requirements for product chemical substance management, Advantech continues to strengthen its green product management system and actively collaborates with government authorities and industry partners. Through participation in government-led programs and industry alliances, the Company focuses on hazardous substance reduction and substitution, the adoption of environmentally friendly materials, and the application of circular resource utilization.

By managing from the product design stage, Advantech reduces the risk of hazardous substance usage at the source, thereby enhancing product environmental friendliness and regulatory compliance.

- Advantech participates in the Environmental Protection Administration's Resource Circulation Administration "Circular Electronics Product Strategy Alliance" working group. Guided by the Environmental Protection Administration and coordinated by the Chung-Hua Institution for Economic Research (Green Economy Research Center), the initiative focuses on green product design, eco-friendly design at source, hazardous substance substitution, adoption of environmentally friendly alternative materials, and high-value applications of recycled materials, aiming to reduce hazardous substance risks at the product design stage.
- Advantech also participates in the Industrial Development Administration, Ministry of Economic Affairs program "Manufacturing Industry Low-Carbon Transformation and Upgrade Subsidy Project (3-year program)," promoting product decarbonization and carbon reduction management through the adoption of green design, low-carbon materials, and hazardous substance substitution solutions, thereby enhancing product environmental performance.



三 、 Environmental and Human Health Hazard Risk Assessment

■ Explanation of Assessment Scope

To fulfill product environmental responsibilities and ensure operational safety, Advantech conducts environmental and human health risk assessments for key chemical substances potentially present in its products. The assessment scope covers regulated chemicals that may exist in Advantech products, including lead (Pb), brominated flame retardants (BFRs), per- and polyfluoroalkyl substances (PFAS), polyvinyl chloride (PVC), among others. Following the guidance of the International Council of Chemical Associations (ICCA) on risk assessment, we integrate the latest scientific research and international regulations (such as RoHS, REACH, GRS) to perform systematic analyses. These analyses encompass hazard characteristics, potential exposure routes, and risk management recommendations.

Advantech operates as an electronic product assembly and manufacturing company, primarily assembling and integrating systems through the direct procurement of electronic components and materials. The manufacturing process does not involve open use of chemicals or reactive chemical processing; chemicals are mostly contained within component structures (such as solder, plastics, and flame retardants), typically in solid, encapsulated, or stable forms. Therefore, the risk of chemical volatilization or release in the daily work environment is extremely low.

Despite the low actual exposure risk, Advantech adheres to the precautionary principle and continuously promotes material inventory and risk management practices. We strive to strengthen hazardous substance control systems and ensure compliance with regulatory requirements and customer specifications. At the same time, we carefully assess and develop response measures regarding the potential long-term cumulative effects and environmental impacts related to chemical substances throughout the product lifecycle, including waste disposal.

Furthermore, we enhance internal risk awareness to implement hazardous substance management and operational safety, advancing our corporate social responsibility commitments toward environmental sustainability and green manufacturing goals.



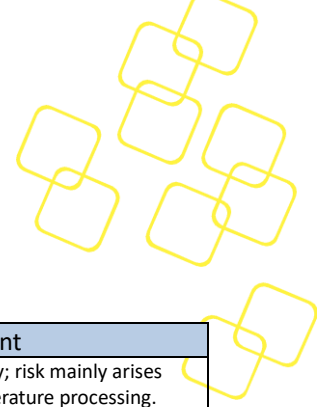
■ Chemical Substances Potentially Present in Advantech Products

1. Usage Scenario

Substance name	CAS No.	Usage Scenario
Lead (Pb) / Lead Compounds	7439-92-1	Solder, Resistor, Capacitor
di-isononyl phthalate (DINP)	28553-12-0	PVC wire (plasticizer), Cable sheath, Plug
di-isodecyl phthalate (DIDP)	26761-40-0 / 68515-49-1	Wire and cable insulation layer, PVC wire (plasticizer)
Antimony trioxide	1309-64-4	Plastic housing, Electronic component encapsulation (with flame retardants)
Tetrabromobisphenol A (TBBP-A)	79-94-7	PCB, Epoxy resin, Plastic housing (flame retardant)
Nickel (Ni) / Nickel Compounds	7440-02-0	Nickel-plated connectors, Terminals, Battery electrodes, Metal housings (plated layer)
Carbon black extracts	1333-86-4	Wire sheathing, Plastic parts (e.g., housings) colorants
Beryllium and compounds	7440-41-7	Switches, Connector contact springs, Thermal interface materials
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Button cell battery (as solvent or electrolyte component)
Lead titanium trioxide	12060-00-3	Ceramic substrates, Electronic ceramic materials
2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	PCB flame retardants, Common in electronic plastic parts
Melamine	108-78-1	Plastic and resin additives for heat-resistant components
Bis(α,α-dimethylbenzyl) peroxide	80-43-3	Organic peroxides (plastic/resin crosslinking agents)
Triphenylphosphate (TTP)	115-86-6	Flame retardants and plastic additives for electronic housings
Brominated Flame Retardants (BFRs)		Plastic housings, PCB flame-retardant layers
PFAS		Anti-fouling and oil-repellent surface treatment
Polyvinyl Chloride (PVC)	9002-86-2	Electronic wire insulation tubing, Cable sheaths, Product housings

2. Hazard Identification

Substance name	CAS No.	Hazard Identification
Lead (Pb) / Lead Compounds	7439-92-1	Possibly carcinogenic (IARC 2A); reproductive toxicity; may cause damage to the nervous system
di-isononyl phthalate (DINP)	28553-12-0	Suspected reproductive toxicant; long-term exposure may affect liver function
di-isodecyl phthalate (DIDP)	26761-40-0 / 68515-49-1	May affect liver and kidney function; potential reproductive toxicity
Antimony trioxide	1309-64-4	Suspected carcinogen (IARC 2B); may cause respiratory irritation
Tetrabromobisphenol A (TBBP-A)	79-94-7	Possible endocrine disruptor; highly toxic to aquatic environments
Nickel (Ni) / Nickel Compounds	7440-02-0	Possibly carcinogenic (IARC 2B); may cause skin allergy and respiratory irritation
Carbon black extracts	1333-86-4	Carbon black not classified as carcinogenic, but some solvent extracts may raise concerns (IARC 2B)
Beryllium and compounds	7440-41-7	Strongly carcinogenic (IARC 1); respiratory diseases and skin sensitivity
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Flammable liquid; acute toxicity; central nervous system depression; toxic to liver and kidneys
Lead titanium trioxide	12060-00-3	Contains lead compounds; toxic; harmful to reproductive and nervous systems
2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	Possible endocrine disruptor; highly toxic to aquatic life
Melamine	108-78-1	Low acute toxicity; long-term exposure may affect kidney function
Bis(α,α-dimethylbenzyl) peroxide	80-43-3	Strong oxidizer; flammable and explosive; toxic and irritating
Triphenylphosphate (TTP)	115-86-6	May affect nervous and reproductive systems; environmentally persistent
Brominated Flame Retardants (BFRs)		Persistent, bioaccumulative, endocrine disrupting, suspected carcinogen, highly toxic to the environment
PFAS		Highly persistent and bioaccumulative; suspected carcinogen; liver and immune effects; endocrine disruption
Polyvinyl Chloride (PVC)	9002-86-2	Stable solid; thermal decomposition releases HCl gas and dioxin-like toxic gases; toxic plasticizers may cause chronic toxicity

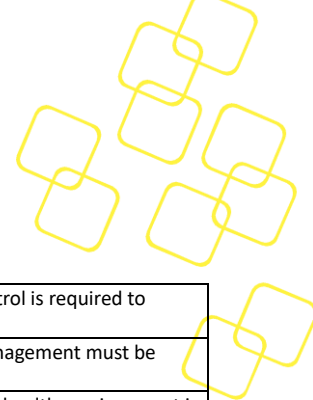


3. Exposure Assessment

Substance name	CAS No.	Exposure Assessment
Lead (Pb) / Lead Compounds	7439-92-1	No direct contact risk during normal assembly; risk mainly arises during repair, cutting, damage, or high-temperature processing.
di-isononyl phthalate (DINP)	28553-12-0	No direct exposure risk during normal assembly; may volatilize during thermal processing, repair, or disposal.
di-isodecyl phthalate (DIDP)	26761-40-0 / 68515-49-1	Low risk during general use; may volatilize or be released during high-temperature processing or destruction.
Antimony trioxide	1309-64-4	Encapsulated in plastic during regular operation with no exposure; dust may be generated during cutting or disposal.
Tetrabromobisphenol A (TBBP-A)	79-94-7	Used in product packaging; low exposure risk under normal operation; may be released as dust or during high-temperature processing.
Nickel (Ni) / Nickel Compounds	7440-02-0	Extremely low exposure when no dust or gas is generated during normal operation; precautions needed during cutting, grinding, or heating.
Carbon black extracts	1333-86-4	Encapsulated in plastic; no direct exposure risk during operation; precautions needed during heating, melting, or burning.
Beryllium and compounds	7440-41-7	Not used during the normal assembly stage; disassembly or destruction of specific components may cause exposure.
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Enclosed within battery packaging with low exposure risk during assembly; risk increases if damaged or leaking.
Lead titanium trioxide	12060-00-3	Well-packaged material; no significant contact risk during assembly; potential exposure during repair or disposal stages.
2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	Not easily exposed inside packaging; risk increases during disposal or high-temperature processing.
Melamine	108-78-1	Solid material; low exposure during assembly; main risk is inhalation of dust.
Bis(α,α-dimethylbenzyl) peroxide	80-43-3	Higher exposure risk during factory storage and batching; no direct contact during assembly.
Triphenylphosphate (TTP)	115-86-6	Limited exposure within packaging material; caution needed during destruction or incineration.
Brominated Flame Retardants (BFRs)		Encapsulated in plastic during assembly; low exposure risk; increased risk during waste incineration or processing.
PFAS		Limited exposure during assembly; dust or liquid exposure possible during repair, disposal, or surface treatment.
Polyvinyl Chloride (PVC)	9002-86-2	Low exposure during assembly and use; volatile toxic gases and plasticizers may be released during processing or incineration.

4. Description of Risk Characteristics

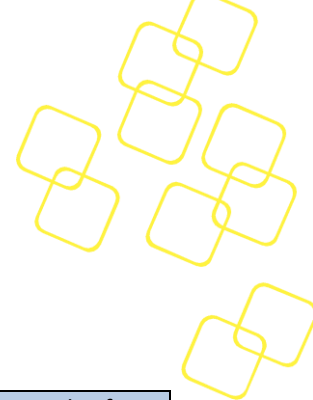
Substance name	CAS No.	Description of Risk Characteristics
Lead (Pb) / Lead Compounds	7439-92-1	Lead accumulates in the human body, causing long-term health effects. The risk is very low when the product is fully encapsulated; special management is required for potential exposure during maintenance or disposal stages.
di-isononyl phthalate (DINP)	28553-12-0	Risk is very low when the product is encapsulated; attention is needed for potential release during heating and disposal scenarios.
di-isodecyl phthalate (DIDP)	26761-40-0 / 68515-49-1	Risk is low in the encapsulated material state; focus should be on thermal processing and maintenance/disassembly stages.
Antimony trioxide	1309-64-4	No significant risk under complete product encapsulation; evaluation needed for risks during thermal processing and destruction stages.
Tetrabromobisphenol A (TBBP-A)	79-94-7	Risk is very low when the product is intact; special management needed during disposal or destruction stages.
Nickel (Ni) / Nickel Compounds	7440-02-0	Encapsulated state is safe; exposure risks during polishing, cutting, or disposal processes should be managed.
Carbon black extracts	1333-86-4	Low risk during product use; potential exposure under heating or combustion conditions requires assessment.
Beryllium and compounds	7440-41-7	Extremely low probability of use; if used, risk during maintenance/disassembly stages requires focused monitoring.
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Low exposure risk during normal use; acute poisoning and fire risks increase if damaged; harmful to aquatic environments.
Lead titanium trioxide	12060-00-3	Lead toxicity accumulates; long-term low-dose exposure risk still requires attention.
2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	High environmental persistence; ecological impacts require special attention.
Melamine	108-78-1	Dust inhalation may cause lung irritation.



Bis(α,α-dimethylbenzyl) peroxide	80-43-3	Strict temperature and storage condition control is required to prevent explosions.
Triphenylphosphate (TTP)	115-86-6	High environmental accumulation; waste management must be carefully considered.
Brominated Flame Retardants (BFRs)		Long-term low-dose accumulation may affect health; environment is persistent and difficult to degrade; toxic gases released during incineration.
PFAS		Low direct exposure; high risk of ongoing environmental pollution; waste management and emission control are critical.
Polyvinyl Chloride (PVC)	9002-86-2	Toxic gases released during high-temperature processing; chronic health effects due to plasticizer PVC; waste incineration causes environmental pollution.

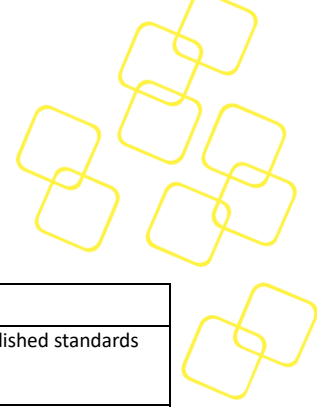
5. Risk Management Suggestions

Substance name	CAS No.	Risk Management Suggestions
Lead (Pb) / Lead Compounds	7439-92-1	Prioritize the use of lead-free materials at the procurement stage; provide appropriate protection and training for personnel involved in maintenance and disposal procedures. Promote the use of lead-free solder and strictly manage soldering and waste disposal.
di-isononyl phthalate (DINP)	28553-12-0	Use low-risk substitutes; enhance ventilation and personal protection during thermal processing or disposal operations.
di-isodecyl phthalate (DIDP)	26761-40-0 / 68515-49-1	Use low-risk plasticizers; ensure ventilation and personal protection in high-temperature work environments.
Antimony trioxide	1309-64-4	Procure alternative materials; incineration and grinding processes should be equipped with exhaust and protective devices; provide education and training.
Tetrabromobisphenol A (TBBP-A)	79-94-7	Select low-hazard flame retardant alternatives during procurement; pay attention to waste disposal and ventilation during high-temperature operations.
Nickel (Ni) / Nickel Compounds	7440-02-0	Avoid direct skin contact with bare nickel; strengthen exhaust and wear personal protective equipment during cutting and grinding.
Carbon black extracts	1333-86-4	Choose carbon black with low PAHs content; enhance exhaust and protection during plastic injection molding.
Beryllium and compounds	7440-41-7	Avoid the use of beryllium materials as much as possible; special parts must be controlled and labeled; use closed systems and personal protective equipment during operations.
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Strengthen ventilation, protective equipment, and strictly enforce disposal and recycling; avoid high-temperature ignition sources.
Lead titanium trioxide	12060-00-3	Use lead-free alternatives, manage disposal procedures, and regularly monitor the work area.
2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	Control waste disposal to prevent harmful emissions from combustion.
Melamine	108-78-1	Prevent dust generation; use vacuum equipment and respiratory protection.
Bis(α,α-dimethylbenzyl) peroxide	80-43-3	Follow storage safety regulations; enhance ventilation and protection during material handling.
Triphenylphosphate (TTP)	115-86-6	Select low-risk substitutes and ensure proper disposal and recycling.
Brominated Flame Retardants (BFRs)		Promote the use of bromine-free or low-bromine alternatives; manage waste; strengthen ventilation and protection; prevent the release of toxic gases from plastic combustion.
PFAS		Use PFAS-free alternatives; strengthen waste discharge control; prevent dust and liquid leakage; enhance ventilation and personal protection.
Polyvinyl Chloride (PVC)	9002-86-2	Enhance ventilation and exhaust in processing areas; replace with non-toxic plasticizers; wear respiratory protection; strictly control waste incineration and recycling.



6. Regulatory Restrictions and Occupational Safety Codes / Exposure Limits

Substance name	CAS No.	GHS Classification	Regulatory Restrictions	Occupational Safety Codes / Exposure Limits
Lead (Pb) / Lead Compounds	7439-92-1	(1) Reproductive Toxicity Category 1A (2) Specific Target Organ Toxicity Category 2 (3) Acute Toxicity Category 4	Standards: RoHS; REACH; OSHA Recordable Chemicals; CP65	OSHA PEL-TWA: 0.05 mg/m ³
di-isononyl phthalate (DINP)	28553-12-0	Unclassified, suspected to have partial reproductive toxicity Category 2	REACH; banned in infant products in some countries; CP65	AIHA WEEL: 5 mg/m ³ (TWA)
di-isodecyl phthalate (DIDP)	26761-40-0 / 68515-49-1	Unclassified, suspected partial reproductive toxicity	REACH; restrictions on children's products in the USA and EU; CP65	No established OEL (recommended to refer to standards for similar substances)
Antimony trioxide	1309-64-4	(1) Carcinogenicity Category 2 (2) Specific Target Organ Toxicity Category 2	REACH; classified by the EU as a suspected carcinogen; CP65	TLV-TWA: 0.5 mg/m ³ (ACGIH)
Tetrabromobisphenol A (TBBP-A)	79-94-7	Unclassified, suspected partial toxicity	REACH ; CP65	No established OEL (recommended to limit dust exposure)
Nickel (Ni) / Nickel Compounds	7440-02-0	(1) Carcinogenicity Category 2 (2) Skin Sensitizer Category 1	REACH ; CP65	OSHA PEL: 1 mg/m ³ (metallic nickel); ACGIH TLV: 1.5 mg/m ³
Carbon black extracts	1333-86-4	Virgin carbon black unclassified; extracts are possibly carcinogenic to humans	IARC; toxic reference record in REACH; CP65	ACGIH TLV: 3.5 mg/m ³ (inhalable particles)
Beryllium and compounds	7440-41-7	(1) Carcinogenicity Category 1 (2) Specific Target Organ Toxicity Category 1 (3) Acute Toxicity Category 2	REACH; OSHA Hazardous Substances List; CP65	OSHA PEL: 0.2 µg/m ³ (inhalable); ACGIH TLV: 0.05 µg/m ³ (TWA)
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	(1) Flammable Liquid Category 2 (2) Acute Toxicity Category 3 (3) Specific Target Organ Toxicity Category 3	REACH; OSHA Hazard Communication Standard	ACGIH TLV-TWA 100 ppm
Lead titanium trioxide	12060-00-3	(1) Reproductive Toxicity Category 1A (2) Specific Target Organ Toxicity Category 2	RoHS ; REACH	OSHA PEL 0.05 mg/m ³
2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol	79-94-7	Unclassified, suspected partial toxicity	REACH	No clear standards; recommended to control dust exposure
Melamine	108-78-1	Unclassified hazard	REACH	ACGIH TLV-TWA 10 mg/m ³ (dust)
Bis(α,α-dimethylbenzyl) peroxide	80-43-3	(1) Organic Peroxide Type B (2) Acute Toxicity Category 4 (3) Skin Irritation	REACH	No established exposure limit; manage according to site regulations



		Category 2		
Triphenylphosphate (TTP)	115-86-6	Unclassified, suspected partial toxicity	REACH	No established standards
Brominated Flame Retardants (BFRs)		Mostly unclassified; some with toxicity and environmental persistence warnings	RoHS restricts certain substances; REACH	No unified standards; recommended to control dust and smoke exposure
PFAS		Mostly unclassified	Strict controls on PFOA and PFOS in multiple countries; monitored under REACH and USA PFAS regulations	Some regions have guideline values; no global unified standard
Polyvinyl Chloride (PVC)	9002-86-2	Solid PVC is unclassified; gases released during high-temperature decomposition have acute toxic and corrosive hazards		HCl gas OSHA PEL: 5 ppm; plasticizers assessed according to specific substance TLVs

■ Conclusion

After evaluation, certain components in Advantech products may contain chemical substances such as lead, brominated flame retardants (BFRs), per- and polyfluoroalkyl substances (PFAS), and polyvinyl chloride (PVC). However, since Advantech's products are primarily assembled and integrated through direct procurement of electronic components and materials, the direct exposure risk to employees and the environment is relatively low.

Nonetheless, considering potential long-term accumulation effects, waste disposal processes, and the possible release of hazardous substances during high-temperature processing, these chemicals still pose certain inherent risks.

To mitigate these risks and ensure environmental and personnel safety, Advantech will continue to promote its hazardous substance reduction program, with specific actions including:

- Prioritizing the use of low-toxicity or non-toxic substitute materials in accordance with the hazardous substance reduction plan
- Designing products for easy disassembly and recyclability following WEEE and Advantech's Green Product guidelines, with strict control over waste classification, recycling, and proper disposal
- Enforcing safe operational requirements in manufacturing facilities, adhering to environmental, health, and safety management procedures to ensure proper ventilation and personal protective equipment, alongside strengthening employee training and emergency preparedness

Through these risk management measures, Advantech is committed to protecting employee health, achieving environmental sustainability, complying with regulations and international standards, and advancing corporate social responsibility and sustainable business development.