

Panasonic Group
Chemical Substances Management Rank Guidelines
Ver. 3.1 (for Factories)

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Corporate Environmental Affairs Division
Panasonic Corporation

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1. Purpose of these Guidelines

The purpose of this document, "Chemical Substances Management Rank Guidelines (for Factories)," is to communicate to all business units belonging to the Panasonic Group on a global basis the chemical substances that must be identified and controlled relative to the substances used in the respective business unit. This document also clarifies the substances that are prohibited, that must be reduced for emission/transfer, that require identification of the quantity of consumption as well as emission/transfer, thereby promoting preservation of the global environment, reducing risks for the business units, improving the nearby environment of each business unit as well as improving the staff's occupational health and safety environment.

2. The Aim of Establishing the "Chemical Substances Rank Guidelines (for Factories)"

- (1) To securely control chemical substances in a factory, it is essential to consider an approach not only from an environmental point of view, but also from the perspective of occupational health and safety. In order to help comply with related laws, a list of chemical substances included in the following laws and their anticipated usage by the Panasonic Group companies was prepared. Also included in this list are the regulated substances by the PRTR (TRI) of the United States for enabling global compliance. The guidelines are based on this list, supplemented by ranks according to hazard data (carcinogenicity) and regulatory contents. For this reason, the guidelines are applicable not only to environment-related operations but also to occupational health and safety, and purchasing activities. (Refer to Table 1)
 - Law Concerning the Examination and Manufacture, etc. of Chemical Substances (Chemical Substances Control Law)
 - Work Safety and Hygiene Law
 - Water Pollution Control Law
 - Air Pollution Control Law
 - Ozone Layer Protection Law
 - Law Concerning Special Measures against Dioxins
 - Waste Management and Public Cleansing Law
 - Law Concerning the Promotion of Measures to Cope with Global Warming
 - Law Concerning Reporting, etc. of Release into the Environment of Specific Chemical Substances and Promoting Improvements in their Management (PRTR Law)
 - Offensive Odor Control Law
 - The Basic Environment Law
 - Poisonous and Toxic Substances Control Law
 - Fire Defense Law (Does not provide the Chemical Substance List but includes the Reference Materials)
 - High-pressure Gas Safety Law
 - TRI (Toxics Release Inventory)
- (2) If any substance other than those specified by these guidelines is included as a controlled substance by the regulations in any country or region, then such substance would naturally become included in these guidelines.

Table 1: Description of Laws

Chemical Substances Control Law, Class 1	Chemical substances specified by the "Ordinance on the Law Concerning the Control of Examination and Manufacture, etc. of Chemical Substances" (Ministerial Ordinance) and that are difficult to decompose, have a high accumulation and long-term toxicity, thereby require a permission to manufacture or import and their use is restricted. Products containing such substances are regulated, thus making their manufacture, import and use practically prohibited.
Chemical Substances Control Law, Class 2	Chemical substances specified by the "Ordinance on the Law Concerning the Control of Examination and Manufacture, etc. of Chemical Substances" (Ministerial Ordinance) and that are difficult to decompose and have long-term toxicity, but not a high accumulation, thereby require that their planned and actual quantities of manufacture or import be reported, and that environmental pollution prevention measures be indicated on the container, etc.
Work Safety and Hygiene Law Manufacturing prohibited	Article 55 prohibits the manufacture, import, transfer, supply or use of substances that may pose serious health risks to workers.
Work Safety and Hygiene Law Rules for preventing risks related to specified chemical substances	With restricted substances for preventing health hazards to workers such as cancer, skin inflammations, nerve disorders, etc. the company is required to establish work methods, improve facilities, prepare a work environment, enhance health control and other measures to minimize the number of workers, period and degree of exposure to these substances.
Work Safety and Hygiene Law Lead poisoning prevention rules Lead 4-alkylate poisoning prevention rules	(Lead) This rule lists applicable operations and requires facility and operation environment improvements, selection of an administrator, health management, etc. (Lead 4-alkylate) The objective of this rule is to prevent poisoning. This substance was previously contained in gasoline as anti-knock agent.
Work Safety and Hygiene Law Organic solvent poisoning prevention rules	Defines organic solvents, organic solvent mixtures, organic solvent operations and requires equipment improvements, selection of an administrator, operational environment preparation, health management, etc.
Work Safety MSDS	Article 57, 2-2 of the Work Safety and Hygiene Law requires the transferring party of the substances requiring a notice (638 items) to notify the receiving party of the seven required pieces of information, including the substance name, its effect on the human body, etc. For other chemical substances not requiring a notice, the transferring party needs to supply MSDS to the receiving party according to the Guidelines Concerning the Indication of Chemical Substance Hazards. (Gazette No. 60, 1992). In addition, Article 101, 2 requires the business operator to notify its workers of the information about the chemical substances received from the supplier.
Water Pollution Prevention Law, Health Item	The MOE ministerial ordinance on wastewater standards (General Administrative Agency Notice No. 35, Article 3, 1971) defines the requirements by a specified facility to comply with nationwide standards for the tolerate limit of hazardous substances (by type) that may affect human health.
Air Pollution Prevention Law, specified substances	Benzene, trichloroethylene, tetrachloroethylene. A facility of a certain scale, which releases any of these substances, must comply with the rules specified by substance type and facility type.
Air Pollution Prevention Law, Specified dust	Of the substances released from crushing or by accumulation, the law specifies certain substances as "specified dust" (currently asbestos), which may pose a health risk to humans. The law specifies a standard concentration (10 pieces of asbestos fiber per 1 liter) in the air of the premises bordering a factory/operations and work standards such as dust collection during exhaust operations.
Air Pollution Prevention Law, Hazardous substances	(1) Cadmium and its compounds, (2) Chlorine and hydrogen chloride, (3) fluorine, hydrogen fluoride and silicon fluoride, (4) Lead and its compounds, (5) Nitrogen oxides
Air Pollution Prevention Law, Smoke dust	Restricted smoke dust refers to particles generated by combustion, including sulfur oxide, soot, and hazardous substances such as (1) Cadmium and its compounds, (2) Chlorine and hydrogen chloride, (3) fluorine, hydrogen fluoride and silicon fluoride, (4) Lead and its compounds, and (5) Nitrogen oxides.

Air Pollution Prevention Law, Specified substances	Substances generated by synthesis, decomposition and other chemical processes that may pose health risks to humans or the living environment. (1) Ammonia, (2) hydrogen fluoride, (3) hydrogen cyanide, (4) carbon monoxide, (5) formaldehyde, (6) methanol, (7) hydrogen sulfide, (8) hydrogen phosphide, (9) hydrogen chloride, (10) nitrogen dioxide, (11) acrolein, (12) sulfur dioxide, (13) chlorine, (14) carbon disulfide, (15) benzene, (16) pyridine, (17) phenol, (18) sulfuric acid (including sulfur trisulfide), (19) silicon fluoride, (20) phosgene, (21) selenium dioxide, (22) chlorosulphonic acid, (23) yellow phosphor, (24) phosphor trichloride, (25) bromine, (26) nickel carbonyl, (27) phosphor pentachloride, (28) mercaptan
Ozone Layer Protection Law	This law (May 1988) defines CFCs and HFCs, which are subject to production regulations as per the Montreal Protocol, as "specified substances," requiring manufacturing quantity restrictions according to the stipulated schedule, emission suppression and usage rationalization by the operators.
Dioxin Special Measures Law	This law (July 16, 1999, No. 105) for preventing environmental pollution and impact on human health, restricts incineration processes and controls soil pollution.
Waste Management Law, Hazardous substances	Specified hazardous substances contained in specially controlled industrial waste
Global Warming Prevention Law	This law (October 9, 1998, No. 117) specifies greenhouse effect gases (carbon dioxide, methane, di-nitrogen monoxide, hydrofluorocarbon, perfluorocarbon, sulfur 6-fluorate).
PRTR Class 1	The chemical substances are specified by the PRTR Law (July 13, 1999, Publication No. 86) as requiring PRTR (emission/release/transfer/registration to environment) and MSDS (Material Safety Data Sheet) if they are contained in raw materials or components with a concentration of 1% by weight or higher (0.1 wt% for specified Class 1 substances).
PRTR Class 2	The chemical substances are specified by the PRTR Law (July 13, 1999, Publication No. 86) as requiring MSDS for conducting transactions.
Offensive Odor Prevention Law	This law (June 1, 1971, No. 91) restricts the offensive odors of ammonia, methyl-mercaptan, etc. generated from factories or other operations. Restrictions on the concentration at exhaust ports and premises boundary.
Prioritized air pollutants	Of the hazardous air pollutants, the following substances are specified as requiring priority actions: (1) acrylonitril*, (2) acetaldehyde*, (3) vinyl-chloride monomer*, (4) chloroform*, (5) chloromethyl-methyl-ether, (6) ethylene oxide, (7) 1,2-dichloro-ethane*, (8) dichloromethane*, (9) mercury and its compounds, (10) talc (including asbestos-like fibers), (11) dioxins*, (12) tetrachloroethylene*, (13) trichloroethylene*, (14) nickel compounds*, (15) arsenide and its compounds, (16) 1,3-butadiene, (17) beryllium and its compounds, (18) benzene, (19) benzo[a]pyrene, (20) formaldehyde, (21) manganese and its compounds, (22) hexavalent chromium compounds
Hazardous atmosphere	Refers to the substances that may affect human health when taken in for an extended period even at low concentrations. The potential substance list includes 234 items, and requires the operator to prepare a self-management plan and emission suppression.
Hazardous atmosphere (specified substances)	Specifies 1) benzene, 2) trichloroethylene, 3) tetrachloroethylene, 4) dioxins as substances requiring immediate emission suppression for prevention purposes.
Environmental standards	Standards that must be maintained for protecting human health and preserving the living environment. Administration policy target.
Environmental standards, water quality and living environment	Substantial water pollution found in the district due to rapid population growth or large-scale industrial development must meet the standards within five years. If the heavy water pollution cannot be corrected within the specified period and the standards cannot be achieved even with corrective measures, a temporary improvement target should be set and a step by step approach should be taken.
Environmental standards, water quality and health	The set target must immediately be achieved and maintained.
Environmental standards, water quality monitoring-required items	Based on the recommendations in the "Addition of environmental control items for protecting human health from water pollution," made by the Central Pollution Control Board, further knowledge must be accumulated on substances requiring monitoring rather than a standard being set. The notice was issued by the head of the water quality preservation bureau to the governors of regional administrations.

Environmental standards, atmosphere	The environmental standards for carbon monoxide, suspended particle substances or photochemical oxidants shall be maintained or achieved early. The standards for sulfur dioxide shall be maintained or achieved within 5 years.
Hazardous atmospheric pollutants	Since substances in the benzene group (benzene, trichloroethylene, tetrachloroethylene, dichloromethane) may pose a health risk when taken continuously, their environmental standards shall be maintained or achieved early in order to prevent future health risks.
Environmental standards, soil	Any soil, which does not comply with the environmental standards, must achieve these standards as soon as possible according to the degree and spread of pollution and nature of the effects. When these standards are not expected to be achieved early, the necessary measures should be taken to prevent the environmental effects of soil pollution.
Poisonous/toxic substances law, poisonous substances	Refers to substances, whose fatal dose is normally 30 mg/kg or less and are specified by a government ordinance, that are deemed to be poisonous if they result in acute symptoms from exposure through the mouth, skin or respiration. Manufacturing, import and sales are only permitted with a registration.
Poisonous/toxic substances law, specified substances	Refers to substances that are not judged to be poisonous or produce acute symptoms from any mode of exposure through the mouth, skin or respiration and are specified by a government ordinance. This also refers to certain substances that are toxic to skin or tissue and specified by a government ordinance.
Poisonous/toxic substances law, toxic substances	Refers to substances, whose fatal dose is normally 300 mg/kg or less and are specified by a government ordinance, that are deemed to be poisonous if they result in acute symptoms from exposure through the mouth, skin or respiration. Manufacturing, import and sales are only permitted with a registration.
Fire Defense law	The storage, handling and transportation of more than the specified quantity of applicable substances require permission and must be reported.
High-pressure gas safety law	Restricts the manufacturing, storage, sales, transfer and other handling, consumption, container manufacturing and handling of high-pressure gases for promoting self-controlled activities.
TRI	Specified manufacturing facilities are required to report the quantity of use, manufacturing, handling and transportation, and emission into the atmosphere. Approx. 650 types of chemical substances are applicable.

3. Definition of Terms

The terms used in these guidelines are defined as follows.

- (1) **Panasonic Group**
As a rule, includes companies for which Panasonic Corporation has voting rights of more than 50%.
- (2) **Factory Chemical Substances Management Subcommittee**
The Subcommittee consisting of the representatives from each domain company for discussing the policies on the chemical substances used in business units and "Chemical Substances Management Rank Guidelines (for Factories)."
- (3) **"Chemical Substances Management Rank Guidelines (for Factories)"**
Specify prohibited substances by ranking substances that are highly carcinogenic and whose use and manufacturing are prohibited by law. In addition, these guidelines define reduction-required substances as green house gases and substances with a relatively high carcinogenic risk, and controlled substances by requiring that data of their actual use be collected. The application of these guidelines is limited to the chemical substances used in manufacturing business units.
- (4) **Prohibited Substances**
Substances whose use must be stopped immediately. Prohibited substances have been defined based on the following laws and environmental notices in Japan and on highly carcinogenic substances.

Applicable laws in Japan

- Class 1 specified chemical substances defined by the Law Concerning the Examination and Manufacture, etc. of Chemical Substances" (Chemical Substances Control Law) -- manufacturing and import restrictions
 - Hazardous substances prohibited in manufacturing as specified by the "Work Safety and Hygiene Law, Article 55"
 - Substances (excluding HCFC) specified by the "Law Concerning the Protection of the Ozone Layer through the Control of Specified Substances and Other Measures" (Ozone Layer Protection Law)
- (5) **Reduced Substances**
As specified by the law in Table 1, these substances have been defined as having a relatively high carcinogenic risk according to assessments by either the IARC, EPA, ACGIH, or Japan Industrial Hygiene Society. They must be controlled and their usage and emission/transfer quantities must be reduced.
 - (6) **Managed Substances**
As specified by the law in Table 1, these are not classified as prohibited or reduced substances, but their usage and emission/transfer quantities must be controlled, and the rank classification must be periodically checked by monitoring the quantity of exposure during usage and emission/transfer.
 - (7) **M-number List (M-No.)**
The control number assigned by the Panasonic Group for substances whose CAS No. cannot directly be assigned, or given to a general name or substance group.

4. Scope of Application

- (1) These guidelines apply to the substances included in the "Chemical Substance List and M-number List" (Chapter 7) and used in the Panasonic Group's manufacturing business units. However, the application is exempted if any of the following conditions applies.
 - i) Chemical substances that do not assume the state of powder, liquid or gas during their handling process
 - ii) Chemical substances handled in a sealed condition with zero possibility of exposure during the process
 - iii) Products used for general consumers' daily lives (anti-insect spray, etc.)
 - iv) Chemical substances contained in the parts and materials used for production equipment/facilities, building/facility materials, and refrigeration/air-conditioning products. However, materials required for periodic maintenance such as lubricants, refrigerants, paints, boiler fuel, etc. are excluded.
 - v) Chemical substances contained in electrical products, instrumentation equipment, fire-extinguishing equipment and measuring instruments.
- (2) The chemical substances used for R&D, quality failure analysis (operation confirmation of older products), repair of the products manufactured/sold in the past, health management, etc. require that data be collected on their usage, emission/transfer, etc. for appropriate management, but are exempted from ranks such as "Prohibition," "Reduction" in the guidelines.
- (3) The guidelines require compliance with the relevant laws, ordinances, industry guidelines or other requirements, but do not prevent any voluntary activities of a higher standard in a business unit.
- (4) Substances with a concentration rate of 1% or greater (0.1% for specified Class 1 carcinogenic chemical substances) require MSDS (Material Safety Data Sheet). However, if available from a supplier, the collection of more detailed data is recommended.

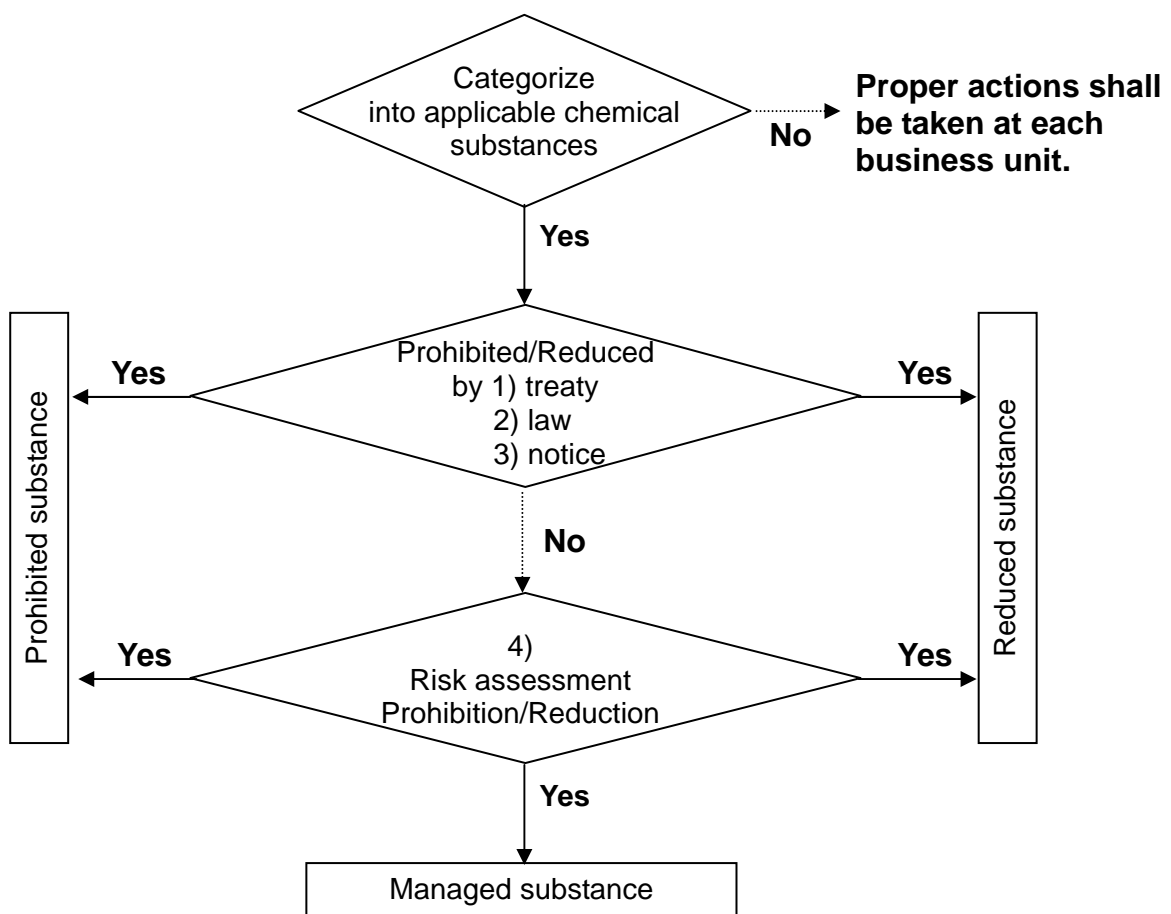
5. Determination of a Rank Category

The definitions of a rank category and rank category approaches are shown below.

(1) Definition of a rank category

Rank category	Usage in a production process
Prohibited substance	Usage prohibited
Reduced substance	Reduction of emission/transfer quantity
Managed substance	Management of used quantity, emitted/transferred quantity

(2) Rank category approaches



The details of 5. (2) 3) & 4) in the flow chart are shown below.

1) Environment Notice	Environment Notice 93-1	CFC, 1,1,1 trichloroethane, HCFC (new use for cleansing), carbon tetrachloride, specific halon			Prohibition
	Environment Notice 93-20	1,1,1 trichloroethane, carbon tetrachloride, dichloromethane, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, 1,1,2-trichloroethane, trichloroethylene, tetrachloroethylene, 1,3-dichloropropan			
	Environment Notice 93-11	PBBOs (decabrom base), PBBs (prohibited for European market)			Reduction
	Environment Notice 03-15	Cadmium, lead, hexavalent chromium, mercury			Prohibition
	Environment Notice 07-20	Perfluorooctane sulfonate (PFOS) and its salts			Prohibition
2) Risk assessment	Assess risks using the formula: 1) Hazard evaluation x 2) Exposure evaluation.				
	1) Hazard evaluation: Carry out hazard evaluation in line with the following carcinogenicity evaluation methods (refer to Reference Material 2.)				
	Class	1ARC	EPA	ACGIH	Japan Industry and Sanitation
	A	1	A	A1	1
	B	2A, 2B	B1, B2	A2, A3	2A
	C	3, 4	C, D	A4, A5	2B
	When class A assessment exists → Prohibited substance When no class A assessment exists but class B assessment exists → Reduced substance When only class C and lower assessment exist → Managed substance				
2) Exposure evaluation: a. Elution test: Perform the elution test according to the Environment Agency Notice No. 13, TCLP method defined by the EPA. b. Emission/transfer: Use the values revealed by PRTR surveys					

(3) Change of a rank category

When the primary chemical substance used for manufacturing products in a production process cannot be substituted with a safer alternative based on current technologies, an application shall be made to the "Factory Chemical Substances Management Subcommittee" by using the specified exemption form. When the application is reviewed and approved by the Subcommittee, the applied rank shall be lower than the normally applied rank. However, when a substitute substance has been found, a change of a rank category shall be submitted so that the substance can return to its normal rank. This change applies to all uses that previously received a similar treatment.

Change of a rank category: applies to the following cases.

- a. Substance essential to a product's function, but which cannot be substituted with another material.
- b. When the use of the substance is specified by the customer.
- c. The emission/transfer quantity is particularly large in the PRTR survey.
- d. A change of applicable rank is permitted based on the results of a dissolution test.

6. Establishment and Abolition

- (1) The matters in these guidelines shall be discussed by the Factory Chemical Substances Management Subcommittee consisting of representatives from division/affiliated companies, and approved by the director of the Corporate Environmental Affairs Division.
- (2) The contents of these guidelines are periodically (once a year) reviewed by the Factory Chemical Substances Management Subcommittee. A company-wide survey is conducted prior to a review via environmental correspondence and the Subcommittee then discusses the survey feedback to consider a possible revision. However, in the following cases, the administration office will review, gather the results of the Subcommittee's discussions, and obtain approval for a revision from the director of the Corporate Environmental Affairs Division.
 - 1) Change of social circumstance such as modification of laws
 - 2) Technological advancements (substitute technologies, assessment technologies), improvement of hazard data, exposure data, risk assessment data, etc.
 - 3) Request for revision received from a business unit

7. Chemical Substance List and M-number List

Chemical substance list must comply with the latest version of the separately distributed "Chemical Substances Management Rank Guidelines (for Factories) Chemical Substance List"

- "Chemical Substances Management Rank Guidelines (for Factories) Chemical Substance List" URL:

(Intranet access: Japanese, English, Chinese version)

http://iweb.mei.co.jp/cont/env/jpn/performance/cf/chemical/chemical_rank.html

(Open access: Japanese website)

<http://panasonic.co.jp/eco/suppliers/index.html#ch>

(Open access: English website)

<http://panasonic.net/eco/suppliers/index.html#ch>

M-number List

Rank category	Substance group	M-No.	Substance name
Reduction	Green house gases (HFCs)	M-02	R-404A (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-03	R-404A (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-04	R-407C (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-05	R-410A (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-06	R-410B (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-07	T-507A (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-08	R-508A (Mixture of HFCs)
Reduction	Green house gases (HFCs)	M-09	R-508B (Mixture of HFCs)
Reduction	Other brominated flame retardants	M-11C	Other brominated flame retardants
Reduction		M-11D	Chlorinated flame retardants
Prohibition		M-12	Polvinylchloride and mixture
Management		M-13	Alkylphenol (C5-C8)
Management	Poly (oxi-ethylene) alkyl ethers	M-17	Poly(oxyethylene) alkyl(C12-17) ether
Prohibition	Ozone layer depleting substances (HBFCs)	M-102	Tribromodifluoroethane; C ₂ H ₂ F ₂ Br ₃
Prohibition	Ozone layer depleting substances (HBFCs)	M-103	Tribromofluoroethane; C ₂ H ₂ FBr ₃
Prohibition	Ozone layer depleting substances (HBFCs)	M-104	Other bromodifluoroethane; C ₂ H ₃ F ₂ Br
Prohibition	Ozone layer depleting substances (HBFCs)	M-105	Hexabromofluoropropane; C ₃ H ₂ F ₆ Br ₆
Prohibition	Ozone layer depleting substances (HBFCs)	M-107	Tribromotetrafluoropropane; C ₃ H ₂ F ₄ Br ₃
Prohibition	Ozone layer depleting substances (HBFCs)	M-108	Tribromotrifluoropropane; C ₃ H ₂ F ₃ Br ₃
Prohibition	Ozone layer depleting substances (HBFCs)	M-109	Pentabromodifluoropropane; C ₃ H ₂ F ₂ Br ₅
Prohibition	Ozone layer depleting substances (HBFCs)	M-110	Pentabromofluoropropane; C ₃ H ₂ FBr ₅
Prohibition	Ozone layer depleting substances (HBFCs)	M-111	Tetrabromodifluoropropane; C ₃ H ₂ F ₂ Br ₄
Prohibition	Ozone layer depleting substances (HBFCs)	M-112	Dibromotetrafluoropropane; C ₃ H ₂ F ₄ Br ₂
Prohibition	Ozone layer depleting substances (HBFCs)	M-113	Tetrabromofluoropropane; C ₃ H ₃ FBr ₄
Prohibition	Ozone layer depleting substances (HBFCs)	M-114	Bromodifluoropropane; C ₃ H ₅ F ₂ Br
Prohibition	Cadmium and its compounds	M-121	Other cadmium compounds
Prohibition	Lead and its compounds	M-122	Other lead compounds
Prohibition	Hexavalent chromium compounds	M-123	Other hexavalent chromium compounds
Reduction	Mercury and its compounds	M-124	Other mercury compounds
Prohibition	Azo dyes and pigments forming specified amines	M-126	Azo dyes and pigments forming specified amines (see List of the Specific Generation-prohibited Amines)
Prohibition	Ozone layer depleting substances (HBFCs)	M-127	Tetrabromotrifluoropropane; C ₃ H ₂ F ₃ Br ₄
Reduction	Serene and its compounds	M-128	Other selenium compounds
Reduction	Antimony and its compounds	M-129	Other antimony compounds
Reduction	Nickel and its compounds	M-130	Other nickel compounds
Prohibition	Arsenide and its compounds	M-131	Other arsenic compounds

Prohibition	Beryllium and its compounds	M-132	Other beryllium compounds
Management	Bismuth and its compounds	M-133	Other bismuth compounds
Management	Magnesium and its alloys	M-134	Magnesium alloy
Management	Organic tin compounds	M-135	Copolymer of alkyl(C8) acrylate, methyl methacrylate and tributyltin methacrylate
Management	Organic tin compounds	M-136	Tributyltin cyclopentane carboxylate and its derivatives
Management	Organic tin compounds	M-137	Tributyltin=1,2,3,4,4a,4b,5,6,10,10a-decahydro-7-isopropyl-1,4a-dimethyl-2-phenanthrene carboxylate and its derivatives
Management	Organic tin compounds	M-138	Other tributyltin or triphenyltin derivatives (TBTs, TPTs)
Reduction	Ozone layer depleting substances (HCFCs)	M-139	Dichlorotrifluoropropane
Reduction	Ozone layer depleting substances (HCFCs)	M-140	Other chlorotetrafluoroethane (HCFC-124)
Reduction	Ozone layer depleting substances (HCFCs)	M-141	Other dichlorofluoroethane (HCFC-141)
Reduction	Ozone layer depleting substances (HCFCs)	M-142	Other chlorodifluoroethane (HCFC-142)
Reduction	Ozone layer depleting substances (HCFCs)	M-143	Other dichloropentafluoropropane (HCFC-225)
Management	Radioactive substances	M-144	Other radioactive material
Management	Ester phthalates	M-145	Other phthalates
Management	Inorganic gold compounds	M-146	Other gold compounds
Management	Silver and its compounds	M-147	Other silver compounds
Management	Silver and its compounds	M-147A	Other silver soluble compounds
Management	Copper and its compounds	M-148	Other copper compounds
Management	Copper and its compounds	M-148A	Other copper soluble compounds (excluding complex salts)
Management	Palladium and its compounds	M-149	Other palladium compounds
Prohibition	Specific amine compounds (4-amine diphenyl and its salt)	M-150	[1,1'-Biphenyl]-4-amine salt
Prohibition	Specific amine compounds (Benzidine and its salt)	M-151	Specific amine compounds (Benzidine and its salt)
Prohibition	Specific amine compounds (3-naphtylamine and its salt)	M-152	Specific amine compounds (3-naphtylamine and its salt)
Prohibition	Specific brominated flame-retardants	M-153	Other polybromodiphenylethers
Management	Hafnium and its compounds	M-154	Hafnium compounds
Management	Organic cyanide	M-155	Other organic cyanide
Management	Beryllium compounds	M-156	Metal alloy containing beryllium less than 3wt%
Management	Zinc and its compounds	M-158	Other zinc soluble compounds
Management	Linear alkylbenzene sulfonates and their salts (Alkyl with C=10-14, mixture)	M-159	Other linear alkylbenzene sulfonates and their salts
Management	Chromium, trivalent chromium compounds	M-160	Other chromium and trivalent chromium compounds
Reduction	Cobalt and its compounds	M-161	Other cobalt and its compounds
Reduction	Inorganic cyan compounds	M-162	Other inorganic cyanides (excluding complex salts and cyanates)
Prohibition	Dioxins	M-163	Other dioxins
Management	Barium and its compounds	M-164	Other barium soluble compounds

Management	Fluorides	M-165	Other hydrogen fluorides and their soluble compounds
Management	Boron and its compounds	M-166	Other borides
Reduction	Manganese and its compounds	M-167	Other manganese compounds
Management	Molybdenum and its compounds	M-168	Other molybdenum compounds
Management	Indium and its compounds	M-169	Other indium compounds
Management	Thallium and its compounds	M-170	Other thallium compounds
Management	Tellurium and its compounds	M-171	Other tellurium compounds (excluding tellurium hydride)
Prohibited	PFOS	M-172	Other perfluorooctane sulfonate and its salts

8. Changes in Ranking

Basic policy: Changes in ranking apply only to "Prohibited" substances.

"Reasons for changes" (CAUTION)

- (1) All items exempted from the Chemical Substances Management Rank Guidelines (for Products) shall be treated as "Reduced" substances.
- (2) The substances exempted from the No Hazardous Substances in Products Project shall be treated as "Reduced." However, the "application extended" substances will become "Prohibited" when such treatment is cancelled.
- (3) Any substance used in a process as requested by a customer shall be "Prohibited" if it does not conform to laws/regulations, and "Reduced" if it is voluntarily prohibited by Panasonic Group.
- (4) The substance designated as "Managed" by the Chemical Substances Management Rank Guidelines (for Products) and "Prohibited" by the Chemical Substances Management Rank Guidelines (for Factories) shall be discussed by the Subcommittee.
- (5) Substances that are technically impossible to replace with alternate materials shall be discussed by the Subcommittee.

Changes of ranking for substances ranked as "Reduced" to "Managed" are not permitted.

Numbers (1) through (5) above are the same reasons for changes given in the separate table entitled "Rank Change List."

Rank Change List: URL

(Intranet access: Japanese, English, Chinese version)

http://iweb.mei.co.jp/cont/env/jpn/performance/cf/chemical/chemical_rank.html

< Reference Material >

List of the Specific Generation-prohibited Amines
(Refer to the Chemical Substances Management Rank Guidelines (for Products))

CAS No.	Substance name
60-09-3	4-aminoazobenzene
90-04-0	o-anisidine
91-59-8	2-naphthylamine
91-94-1	3,3-dichlorobenzidine
92-67-1	4-aminodiphenyl
92-87-5	Benzidine
95-53-4	ortho- toluidine
95-69-2	4-chloro-o-toluidine
95-80-7	2,4-toluenediamine
97-56-3	ortho-Aminoazotoluene
99-55-8	5-nitro-o-toluidine
101-14-4	4,4-methylene-bis-(2-chloroaniline)
101-77-9	4,4-diaminodiphenylmethane
101-80-4	4,4-oxydianiline
106-47-8	p-chloroaniline
119-90-4	3,3-dimethoxybenzidine
119-93-7	3,3-dimethylbenzidine
120-71-8	p-cresidine
137-17-7	2,4,5-trimethylaniline
139-65-1	4,4-thiodianiline
615-05-4	2,4-diaminoanisole
838-88-0	3,3-dimethyl-4,4-diaminodiphenylmethane

Fire Defense Law

Dangerous Material Names and Specified Quantities

Group	Item name	Specified quantity	Group	Item name	Specified quantity
Group 1 (Oxidizing solids)	1. Chlorates		Group 4 (Flammable liquids)	1. Special flammable liquids (Flash point -20°C or below)	50 L
	2. Perchlorates			2. First petroleum group* (Flash point 20°C or below)	200 L
	3. Inorganic oxides			3. Alcohol group	400 L
	4. Chlorites			4. Second petroleum group* (Flash point 21 to 70°C or below)	1,000 L
	5. Bromates			5. Third petroleum group* (Flash point 71 to 200°C or below)	2,000 L
	6. Nitrates			6. Fourth petroleum group (Flash point 201°C or above)	6,000 L
	7. Iodates			7. Animal oils	10,000 L
	8. Permanganates			* Twice the shown quantity of water soluble liquids is permitted	
	9. Dichromates				
	10. Others specified by government ordinance				
	11. Substances containing the above				
	Class 1 oxidizing solids	50 kg			
	Class 2 oxidizing solids	300 kg			
	Class 3 oxidizing solids	1,000 kg			
Group 2 (Flammable solids)	1. Phosphor sulfide	100 kg	Group 5 (Self-reactive substances)	1. Organic peroxides	
	2. Red phosphorus	100 kg		2. Nitric esters	
	3. Sulfur	100 kg		3. Nitro compounds	
	4. Iron powder	500 kg		4. Nitroso compounds	
	5. Metal powder			5. Azo compounds	
	6. Magnesium powder	100 kg		6. Diazo compounds	
	7. Others specified by government ordinance			7. Hydrazine derivatives	
	8. Substances containing the above	1,000 kg		8. Hydroxylamine	10 kg
	9. Flammable solids			9. Hydroxylamine salts	
		Class 1 flammable solids		100 kg	10. Others specified by government ordinance
	Class 2 flammable solids	500 kg		11. Substances containing the above	
			Class 1 Self-reactive substances	10 kg	
			Class 2 Self-reactive substances	100 kg	
Group 3 (Naturally flammable and water-insoluble substances)	1. Kalium	10 kg	Group 6 (Oxidizing liquids)	1. Perchloric acid	
	2. Natrium	10 kg		2. Hydrogen peroxide	300 kg
	3. Alkyl-natrium	10 kg		3. Nitric acid	300 kg
	4. Alkyl-lithium	10 kg		4. Others specified by government ordinance	
	5. Yellow phosphorus	20 kg		(Halogen compounds, bromine trifluoride, etc.)	
	6. Alkali metals and alkaline-earth metals			5. Substances containing the above	
	7. Organic metal compounds				
	8. Metal hydroxides				
	9. Metal-phosphor compounds	10 kg			
	10. Calcium or aluminum carbides	50 kg			
	11. Others specified by government ordinance	300 kg			
	12. Substances containing the above				
		Class 1 Naturally flammable and water-restricted substances		10 kg	
	Class 2 Naturally flammable and water-restricted substances	50 kg			
	Class 3 Naturally flammable and water-restricted substances	300 kg			

Evaluation of Carcinogenicity

- (1) IARC (International Agency for Research on Cancer)
[Sources: IARC MONO; GRAGHS Vol. 79, 2001]

- 1: Substance carcinogenic to humans.
- 2: Substance maybe carcinogenic to humans
2A: Probably carcinogenic to humans
2B: Possibly carcinogenic to humans
- 3: Substance unclassifiable as to carcinogenicity in humans without sufficient evidence
- 4: Substance Probably not carcinogenic to humans

- (2) EPA (the U.S. Environmental Protection Agency)
[Source: IRIS Information, 2002]

- A: Substance carcinogenic to humans having enough epidemiological evidence
- B: Substance probably carcinogenic to humans
B1: Substance having limited epidemiological evidence
B2: Substance having enough evidence based on experiments on animals but insufficient epidemiological evidence
- C: Substance with only limited evidence by experiments on animals and possibly carcinogenic to humans
- D: Substance for which carcinogenicity to humans cannot be judged as the existing evidence about humans and experiments on animals is not enough.

- (3) ACGIH (American Conference of Governmental Industrial Hygienists)
[Source: ACGIH (2002 edition)]

- A1: Substance carcinogenic to humans
- A2: Substance possibly carcinogenic based on the results of experiments on animals
- A3: Substance carcinogenic to animals
- A4: Substance without evidence data on carcinogenicity to humans
- A5: Substance not carcinogenic to humans

- (4) Japan Society of Industry and Hygiene
[Source: Recommendation of tolerable concentration, etc., 2002]

- 1: Substance carcinogenic to humans
- 2: Substance possibly carcinogenic to humans
2A: Substance for which evidence is enough
2B: Substance for which evidence is comparatively not enough

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