

EHS-701

Summary of

Requirements

Environment, Health and Safety
Requirements for Consumables

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Preface

This document is created as a high-level overview of Xerox and regulatory requirements for Xerox® branded consumable materials and can be used when referencing the full text of EHS-701 Standard – Environmental, Health & Safety Requirements for Consumables when providing suppliers, vendors, or other interested parties with an overview of the EHS requirements for materials sourced for use in Xerox® branded products. Detailed information may be obtained by contacting the Standard Owner.

Disclaimer: This is meant as a high-level overview only and further discussion and information exchange may be required between the supplier and EHS&S personnel to satisfy all requirements of the Standard.

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1. Standard Overview

Objective

To ensure that Xerox® branded consumable products and the materials used in them are compliant with the following:

- Regulatory requirements at the local, national, and international level
- Xerox requirements for human and environmental health
- Prohibited or restricted use of listed materials

Definitions

Consumables/Consumable Products: Any chemical substance or mixture consumed in the process of using, inspecting, or repairing the equipment. Included products may be, but are not limited to, printing supplies (e.g., toners, inks), fuser lubricants and service consumables (e.g., cleaners).

Scope

Xerox EHS-701 Standard applies to all chemical substances or mixtures used as ingredients or constituents in Xerox branded consumable products worldwide.

Non-Xerox branded consumable products: The minimum requirements listed in Section 2 of this document apply to all consumable products, including those not branded by Xerox. EHS&S review and approval may apply.

Manufacturing process or intermediate chemicals: While EHS-701 Standard does not apply to chemical substances or mixtures used solely in the manufacturing process and not included in the final product formulation, minimum requirements as listed in Section 2 of this document do apply.

EHS&S Review and Approval of Materials

Under EHS-701, a qualified Xerox EHS&S individual will approve materials after they have completed a comprehensive evaluation of all materials (at the ingredient and product level) used in the composition of Xerox® branded consumable products using a precautionary weight-of-evidence approach and considering the life cycle of the product. The result of this evaluation ensures:

- Compliance with jurisdiction-specific regulatory requirements (e.g., TSCA [US], REACH [EU, UK, Turkey], Canadian regulations).
- Accurate classification under the Globally Harmonized System of Classification and Labeling of Chemicals (GHS) and European regulation (EC) No 1272/2008 on classification, labelling and packaging (CLP) of substances and mixtures.
- Compliant documents (Safety Data Sheets and labels) for each of the Xerox® branded consumable products; and
- Compliance with Xerox internal standards regarding health, safety, and environmental impacts

2. Requirements for Suppliers

Minimum Requirements

At a minimum, supplier must provide Xerox Corporation with:

- A GHS compliant Safety Data Sheet (SDS) for the chemical substance or mixture; and
- Information regarding regulatory registration status in various jurisdictions (e.g., USA, Canada, EU)

A supplier should review the attached list of prohibited substances (See **Table 1**). If any of the constituents of the chemical substance or mixture is listed in Table 1, Global Procurement should obtain written approval for an exception from EHS&S before the chemical substance or mixture is procured.

Note: Approval will be dependent on the results of a full product assessment with consideration of potential exposure routes to humans and the environment under normal use or disposal of the material and final product.

Additional Requirements

After initial review, EHS&S may request additional information before final approval of a chemical substance or mixture for use in Xerox consumable products.

FULL FORMULATION – CONFIDENTIAL BUSINESS INFORMATION

Xerox EHS&S may require full disclosure of material composition (and impurities) including those constituents present below 0.1% to fully evaluate the safety and health implications of the material before approval.

In that instance, a Confidential Disclosure Agreement (CDA) outlining limited access to the information will be negotiated and executed by EHS&S.

HAZARDOUS MATERIALS

Any substance or mixture that is considered a hazardous material or contains a hazardous material under the GHS classification system or other authoritative body will be reviewed for acceptance/approval by a qualified Xerox EHS&S individual.

Approval of any hazardous material for use in Xerox® consumable products will be dependent on the intended use and may be expressly limited. Any substance or mixture classified in any of the following categories will require full EHS&S review and may require further testing of the material before approval:

- Acute Toxicity (Oral, Dermal or Inhalation)
- Eye or Respiratory Corrosive
- Carcinogen
- Mutagen

- Reproductive toxin
- Sensitizer (Respiratory or Skin)
- Neurotoxin
- Aquatic Toxin (Acute or Chronic)
- Hazardous Waste

Acceptance CRITERIA

Substance-specific restrictions

Some constituents may have predetermined acceptance criteria. Any deviation from the criteria would require expressed written approval from EHS&S personnel and may require additional testing of the material.

1. Carbon Black
 - a. Specific condensed ring hydrocarbons: < 1 ppm each
 - b. Total nonspecific condensed ring hydrocarbons: < 10 ppm
 - c. Total nitropyrenes: < 0.15 ppm

Note: Additional specific information regarding the lists of hydrocarbons and nitropyrenes may be obtained by contacting the Standard Owner.
2. Fluorinated Compounds
 - a. Perfluorooctanoic acid (PFOA) and its salts: <25 ppb
 - b. Perfluorooctane sulfonic acid (PFOS) and its derivatives including polymers: <10ppm
 - c. Perfluorohexane-1-sulphonic acid, including linear and branched isomers (PFHxS), its salts and related substances: <25 ppb (for sum of PFHxS and its salts) and <1000 ppb (for sum of PFHxS and its precursor compounds)
 - d. Long-Chain Perfluoroalkyl carboxylic acids (C9-C14 PFCA), their salts and related substances: <25 ppb (sum of PFCA and salts); <260 ppb (sum of PFCA and its precursor compounds)
3. Biocides
 - a. 1,2-benzisothiazol-3(2H)-one (BIT): <0.036%
 - b. 2-methyl-2H-isothiazol-3-one (MIT): <0.0015 %
4. HMDS-treated silica
 - a. <10%
5. Titanium dioxide (TiO₂)
 - a. <1% (in toners)
 - b.

Acceptance criteria for toner/dry ink

1. Toner ingredients
 - a. Cannot be carcinogenic, in the form in which it is used, mutagenic or a reproductive hazard
 - b. Cannot be a sensitizer (respiratory or skin)
 - c. Cannot be a neurotoxin or a respiratory corrosive
 - d. Cannot cause nonlethal toxicity due to single exposure (STOT – SE)
2. Toner formulations
 - a. Cannot be toxic to human or environment health
 - b. Cannot cause skin or respiratory irritation
 - c. Cannot cause nonlethal toxicity due to repeat exposure (STOT – RE)

Acceptance criteria for aqueous liquid inks

1. Aqueous liquid ink **ingredients**:
 - a. Cannot be carcinogenic, in the form in which it is used, mutagenic or a reproductive hazard
 - b. Cannot be a neurotoxin or a respiratory corrosive
 - c. Cannot cause nonlethal toxicity due to single exposure (STOT – SE)
2. Aqueous liquid ink **formulations**
 - a. Cannot be toxic to human or environment health
 - b. Cannot contain a sensitizer above the classification threshold
 - c. Cannot cause more than mild to moderate skin or respiratory irritation
 - d. Cannot cause nonlethal toxicity due to repeat exposure (STOT – RE)

Further Information

Further information can be obtained by contacting the Standard Owner:

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3. Table 1 - Prohibited Substances

Chemical name	CAS Registry No.	Comments
Acetaldehyde	75-07-0	NA
Acrylonitrile	107-13-1	NA
Aminoacetates from polyamines	Various	Contact Standard Owner for complete list
Aniline	62-53-3	NA
Antimony & Antimony compounds	Various	Contact Standard Owner for complete list
Arsenic & Arsenic compounds	Various	Applicable to all inorganic and organic compounds whose molecular formula and/or chemical structural formula includes the chemical symbol "As". This does not include the compounds that have sufficient data demonstrating a lack of carcinogenicity. Contact Standard Owner for complete list.
Asbestos	Various	Contact Standard Owner for complete list
Azo colorants which form certain aromatic amines	Various	Applicable to all colorants whose chemical structural formulas include azo group (-N=N-). Prohibited azo colorants are those that may release, by reductive cleavage of one or more azo groups, carcinogenic aromatic amines. Contact Standard Owner for complete list.
Benzene	71-43-2	Prohibited intentional addition to toners and inks
Benzidine and benzidine-based substances and colorants metabolized to generate benzidine	Various	Contact Standard Owner for complete list
Benzophenone and its derivative Benzophenone-2 (Bp-2)	119-61-9 131-55-5	Contact Standard Owner for complete list
Beryllium and beryllium compounds	Various	Applicable to all inorganic and organic compounds whose molecular formula and/or chemical structural formula includes the chemical symbol "Be". This does not include the compounds that have sufficient data demonstrating a lack of carcinogenicity. Contact Standard Owner for complete list.
Bisphenol A and structural analogs	Various	Allowed as intermediates (monomers) in the manufacture of polymers. Contact Standard Owner for complete list.
Boron compounds	Various	Contact Standard Owner for complete list.
Bromide Salts, Inorganic	Various	Contact Standard Owner for complete list.
1,3-Butadiene	106-99-0	Allowed as intermediates (monomers) in the manufacture of polymers.
Cadmium and cadmium compounds	Various	Applicable to all inorganic and organic compounds whose molecular formula and/or chemical structural formula includes the chemical symbol "Cd". Contact Standard Owner for complete list.
Carbon disulfide	75-15-0	NA.
Chlorinated hydrocarbons	Table 4.2.12	Organic solvents and water pollutants. Threshold limit when incidentally present: 1000 ppm (0.1%). Contact Standard Owner for complete list.

Chemical name	CAS Registry No.	Comments
Chromium VI (Hexavalent chromium) compounds	Various	Contact Standard Owner for complete list.
C.I. Solvent Yellow 14	842-07-9	NA
Cobalt and cobalt compounds	Various	Contact Standard Owner for complete list.
Cyanide compounds and pigments with chemical structures that utilize cyanide complexes	Various	Contact Standard Owner for complete list.
Decamethylcyclopentasiloxane (D5)	541-02-6	NA
o-Dichlorobenzene	95-50-1	NA
p-Dichlorobenzene	106-46-7	NA
1,1-Dichloroethane	75-34-3	NA
1,2-Dichloroethane	107-06-2	NA
1,2-Dichloropropane	78-87-5	NA
Diethylene glycol dimethyl ether (Diglyme; DEGDME)	111-96-6	NA
Dimethyl fumarate (DMF)	624-49-7	NA
N,N-dimethylacetamide (DMAC)	127-19-5	NA
2,4-dinitrotoluene (2,4-DNT)	121-14-2	Articles, including ceramic articles (e.g., toner carriers) are in scope of the restriction.
1,4-Dioxane	123-91-1	In addition to being banned in consumables, cannot be used as a process chemical.
Dodecamethylcyclohexasiloxane (D6)	540-97-6	NA
Endocrine disruptors	Various	Include substances identified as endocrine disruptors at EU level (List I) and substances considered, by the evaluating National Authority, to have endocrine disrupting properties (List III). Contact Standard Owner for complete lists.
Estragole (1-allyl-4-methoxybenzene)	140-67-0	NA
Ethylbenzene	100-41-4	NA
2-Ethoxyethanol	110-80-5	NA
Ethylene dibromide	106-93-4	NA
Ethylene glycol	107-21-1	NA
Ethyl paraben	120-47-8	NA
Formaldehyde	50-00-0	NA
Fluorinated Greenhouse Gases (HFC, PFC and SF6)	Various	Cannot be used as manufacturing process chemicals. Also banned is production of these substances during manufacturing processes. Contact Standard Owner for, non-exhaustive, list.
Fluoropolymers (FPs)	Various	Use in selected Xerox consumable products (e.g., fuser lubricants and service materials used by service engineers) is allowed under the following conditions: <ul style="list-style-type: none"> • There is no available alternative • Concentration of contaminated PFAS (e.g., PFOA, C9-C14 PFCA etc.) does not exceed the limits shown above. Contact Standard Owner for, non-exhaustive, list.

Chemical name	CAS Registry No.	Comments
GenX chemicals (2,3,3,3-tetrafluoro-2-(heptafluoropropoxy)propionic acid, its salts, and its acyl halides (covering any of their individual isomers and combinations thereof) (denoted as HFPO-DA)	Various	Contact Standard Owner for, non-exhaustive, list.
Halogenated (particularly "Brominated (BFR)) flame retardants and Organophosphate flame retardants	Various	Contact Standard Owner for, non-exhaustive, list.
Hexachlorobenzene	118-74-1	NA
Cyclic Aliphatic Bromide Cluster (HBCD)/Hexabromocyclododecane (HBCDD)	Various	Contact Standard Owner for complete list.
1,3,4,6,7,8-Hexahydro-4,6,6,7,8,8-hexamethylcyclopenta [g]-2-benzopyran (HHCB; Galaxolide)	1222-05-5	NA
n-Hexane	110-54-3	NA
4-Hydroxybenzoic acid	99-96-7	NA
Lead and lead compounds	Various	Applicable to all inorganic and organic compounds whose molecular formula and/or chemical structural formula includes the chemical symbol "Pb". Contact Standard Owner for, non-exhaustive, list.
Medium-chain chlorinated paraffins (MCCP) and other substances that contain chloroalkanes with carbon chain lengths within the range from C14 to C17	Various	Contact Standard Owner for, non-exhaustive, list.
Mercury and mercury compounds	Various	Applicable to all inorganic and organic compounds whose molecular formula and/or chemical structural formula includes the chemical symbol "Hg". Contact Standard Owner for, non-exhaustive, list.
Methanol	67-56-1	NA
2-Methoxyethanol	109-86-4	NA
Methyl ethyl ketone	78-93-3	NA
Methyl paraben	99-76-3	NA
Mineral Oils	Various	Include mineral oil hydrocarbons, including mineral oil saturated hydrocarbons (MOSH) and mineral oil aromatic hydrocarbons (MOAH). Contact Standard Owner for, non-exhaustive, list
Nickel and nickel compounds	Various	Applicable to all inorganic and organic compounds whose molecular formula and/or chemical structural formula includes the chemical symbol "Ni". This does not include the compounds that have sufficient data demonstrating a lack of carcinogenicity. Contact Standard Owner for, non-exhaustive, list
2-naphthylamine and its salts	Various	Contact Standard Owner for, non-exhaustive, list.
N-ethyl-2 -pyrrolidone (NEP)	2687-91-4	NA
N-Methylpyrrolidone (NMP)	872-50-4	NA
N-Nitrosodimethylamine; dimethylnitrosamine	62-75-9	NA
N-Nitrosodiphenylamine	86-30-6	NA

Chemical name	CAS Registry No.	Comments
4-Octylphenol	1806-26-4	NA
Organostannic (organotin) compounds: Dibutyltin (DBT) compounds; Dioctyltin (DOT) compounds; Tri-substituted organostannic compounds	Various	Applicable to (1) Dibutyltin compounds in which two butyl groups are covalently bonded to a tin atom; (2) Dioctyltin compounds in which two octyl groups are covalently bonded to a tin atom and (3) Tri-substituted organostannic compounds such as tributyltin compounds and triphenyltin compounds whose molecular formula is R_3SnL_1 . (R= Alkyl group, L= Ligand). Contact Standard Owner for, non-exhaustive, list.
Ozone Depleting Substances (ODSs)	Various	Contact Standard Owner for examples of prohibited ODSs.
Pentachlorobenzene (PeCB)	608-93-5	NA
Pentachlorothiophenol (PCTP)	133-49-3	NA
Per- and polyfluoroalkyl substances (PFAS)	Various	“PFASs are defined as fluorinated substances that contain at least one fully fluorinated methyl or methylene carbon atom (without any H/Cl/Br/I atom attached to it), i.e., with a few noted exceptions, any chemical with at least a perfluorinated methyl group (–CF ₃) or a perfluorinated methylene group (–CF ₂ –) is a PFAS.” [OECD. <i>Series on Risk Management No. 61, 2021</i>]. See above (under “Acceptance criteria/Fluorinated compounds” for allowed threshold concentrations of incidentally present members of PFAS family). Contact Standard Owner for, non-exhaustive, list.
Phenol	108-95-2	NA
Phthalates	Various	Applicable to all members of the class of organic chemicals that are esters of phthalic acid and that contain two carbon chains located in the ortho position. Contact Standard Owner for, non-exhaustive, list.
Pigment Violet 29 (Anthra[2,1,9-def:6,5,10-d'e'f']diisoquinoline-1,3,8,10(2H,9H)- tetrone)	81-33-4	NA
Polybrominated biphenyls (PBBs)	Various	Applicable to polybrominated biphenyls that have the molecular formula $C_{12}H_{(10-n)}Br_n$ in which "n" is greater than 2. Contact Standard Owner for, non-exhaustive, list.
Polybrominated diphenyl ethers (PBDEs)	Various	Applicable to polybrominated diphenyl ethers (PBDEs) with molecular formula $C_{12}H_{(10-n)}Br_nO$ in which $4 \leq n \leq 10$. Contact Standard Owner for, non-exhaustive, list.
Polychlorinated Biphenyls (PCBs) and Specific Substitutes	Various	US EPA restricts inadvertent PCBs in products (e.g., pigments) to an average annual concentration of less than 25 ppm (40 CFR Section 761.3). Contact Standard Owner for, non-exhaustive, list.

Chemical name	CAS Registry No.	Comments
Polychlorinated terphenyls (PCT)	61788-33-8 and other CAS# that apply to this group of substances	Applicable to polychlorinated terphenyls with a molecular formula $C_{18}H_{(14-n)}Cl_n$ in which "n" is greater than 2.
Polychlorinated naphthalenes (PCN)	Various	Applicable to polychlorinated naphthalenes with a molecular formula $C_{10}H_{8-n}Cl_n$ in which "n" is greater than 1. Contact Standard Owner for, non-exhaustive, list.
Polyvinyl chloride (PVC) and its additives	Various	"PVC additives" are "substances that are currently used in PVC (as per active addition of the substances to PVC during compounding/conversion/recycling). Contact Standard Owner for complete list.
2-pyrrolidone	616-45-5	NA
Radioactive materials	Various	Chemical substances that the UN Recommendations on the Transport of Dangerous Goods classifies as radioactive materials. Does not include natural radioactive materials. Contact Standard Owner for the list of representative chemicals.
Short chained chlorinated paraffins (SCCP) or any chemical substance or mixture that contains a chemical that meets the definition of SCCP	Various	Include the chlorinated paraffins that meet the following definition: $C_xH_{(2x-y+2)}Cl_y$, where $x=10-13$ and $y=1-13$ (European Chemicals Bureau (2000) with a chlorination degree of more than 48% by weight. Contact Standard Owner for, non-exhaustive, list.
Styrene	100-42-5	Allowed as intermediate (monomer) in the manufacture of polymers.
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	NA
Terphenyl, hydrogenated	61788-32-7	Threshold concentration in service materials: 0.1% by weight.
Tetrahydrofuran	109-99-9	NA
Toluene	108-88-3	Threshold concentration in service materials: 0.1% by weight.
Trans-1,2- Dichloroethylene	156-60-5	NA
2,4,6-tris(tert-butyl)phenol (2,4,6-TTBP)	732-26-3	NA.
2-(2H-1,2,3-benzotriazole-2-yl)-4,6-ditert-butylphenol (UV-320)	3846-71-7	NA
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-328)	25973-55-1	NA
IARC Group 1 carcinogens ("Carcinogenic to humans")	Various	This does not include the compounds that have sufficient data demonstrating a lack of carcinogenicity. Contact Standard Owner for information
Restricted substances specified by Annex XVII of REACH Regulations: "restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles"	Various	Applicable to the usage specified by Annex XVII of REACH Regulation. Contact Standard Owner for information

Chemical name	CAS Registry No.	Comments
Substances requiring authorization listed in Annex XIV of REACH Regulations: "List of substances included in Annex XIV of REACH ("Authorization List")"	Various	Contact Standard Owner for information
REACH candidate substances of very high concern: "Candidate List of substances of very high concern for Authorization"	Various	Contact Standard Owner for information
California Proposition 65 list of chemicals known to the state to cause cancer or reproductive toxicity	Various	Contact Standard Owner for information