Pall Corporation

Document Number:	**E962**
Revision:	**AD**
Document Title:	**PALL GLOBAL DISALLOWED & CONTROLLED SUBSTANCES**
Document Type:	**SUPPLIER DOCUMENTATION**

Pall wishes to control or limit use of various substances, either in, or in contact with articles and materials used in the manufacture of the products Pall supplies. We therefore request vendors advise Pall if they know certain substances of interest are present in the items they supply to us.

This document contains the substances of current interest. These lists can change. Therefore, Pall has made available this web site copy of the latest listings. In this way Pall hopes to ensure you are kept informed of our current requirements.

.

I. Application

This specification identifies certain substances that Pall, its business units and manufacturing sites (herein referred to as Pall) wish to control, or prohibit use of in/or in contact with Pall purchased components and materials used in the manufacture of products supplied by Pall.

II. Scope

A. Pall needs to be aware of use of certain substances in the manufacture of their filtration and separation products, parts and accessories. The scope of this requirement is all raw materials, purchased components and parts supplied to Pall.

B. The Supplier shall certify, or provide a written **Declaration of Conformity**, that current and future shipments of the subject component or material meet the requirements of this specification, as invoked on the Pall purchase order. This document shall be submitted to the appropriate Pall Manufacturing Site Quality group. In the event of a change to the subject component or material (formulation or manufacturing process) a renewal of this certification / declaration will be required.

C. Unless a concession has been previously granted, it is the Suppliers' responsibility "**not to ship**" and to notify Pall if they have current knowledge, indication, or suspicion, that the supplied component or material may contain a Pall **Disallowed substance**(s) (as defined in Table 2) – wherein failure "not to ship" and to notify is in violation of the Pall Purchase Order and this specification, however Pall shall reserve the right to grant concessions once they have been notified.

D. It is the Supplier's responsibility to notify Pall if they have current knowledge, indication, or suspicion, that the supplied component or material may contain a Pall **Controlled substance**(s) (as defined in Table 1) wherein failure to notify is in violation of the Pall Purchase Order and this specification.

Note: The "**notification of use**" (referred to in paragraphs **II.C**. and **II.D**. above) is limited to Suppliers' in house level of material and process control. This means that "notification of use" is required if the substance is known or suspected by the Supplier to be an ingredient, used in the Suppliers' process, or comes in contact" (including by accidental exposure) with the Pall purchased component.

III. Requirements

A. Pall purchased packaging materials - includes bags, boxes, labels and inserts – require compliance to:

- **CONEG (USA Coalition of North Eastern Governors)**: Toxics in Packaging
- **EU directive 94/62/EC** on packaging and packaging waste.
- EU requirements for registration, evaluation & authorization of chemicals **EU Regulation 1907/2006** (REACH) and its amendments, in respect of any substance listed an SVHC shall be below 0.1% of the material or article supplied.
- EU requirement for Restriction of Hazardous Substances in Electronic and Electrical Equipment **EU directive 2011/65/EU** (ROHS2).

If any of the above requirements are not met, the Supplier must notify the Pall immediately in writing defining the substance and any other available information relative to concentration present.

B. All plastic resins purchased directly by Pall require compliance to:

- EU requirements for registration, evaluation & authorization of chemicals **EU Regulation 1907/2006/1907** (REACH) and its amendments in respect of any substance listed an SVHC shall be below 0.1% of the material or article supplied.
- EU requirement for Restriction of Hazardous Substances in Electronic and Electrical Equipment **EU directive 2011/65/EU** (ROHS2) in respect of prescribed metals levels and other substances specified in ROHS2 shall be below the required levels.

Using generally available industrial test methods and/or equipment, residues of metal catalysts from processes used by the Supplier, i.e. in relation to polymerization process, shall be “below detectable limits”.

If any of the above requirements are not met, the Supplier must notify the Pall immediately in writing defining the substance and any other available information relative to concentration present.

C. **Animal derived materials** – all components or materials purchased by Pall:

The Supplier is responsible for consulting with their material suppliers to determine if and how animal derived materials are used in the material / article to be supplied to Pall. If the presence of direct materials of animal origin, or animal derived materials, are confirmed the Supplier must notify the Pall Corporation ordering facility in writing. The Supplier must also advise Pall of: animal source (bovine / ovine / caprine / poultry / porcine etc.), how the animal derived material is used, how it is processed to minimize the risk of transmission of TSE (transmissible spongiform encephalopathy) / BSE (bovine spongiform encephalopathy) such as identified by the **U.S. Code of Federal Regulations**, Title 9 of part 94.18, which sets forth restrictions on the source of products and the CPMP’s Note or guidance (**EMEA/410/01**), quantity present (volume %) and its source (animal type, part of the animal and country of origin).

D. **Controlled Substances** – applicable to all materials provided by the supplier:

If any of the Pall Controlled substances (See Table 1) are known or suspected to be present in the article / materials supplied, are used in the Suppliers' processes, and/or come in contact with during the manufacture of Pall purchased component or material, the Supplier must notify the Pall, in writing defining the substance and any other available information relative to concentration and how the substance is used.

E. Disallowed Substances – applicable to all materials provided by the supplier:

If any of the Pall Disallowed substances (See Table 2) are known or suspected to be present in the article / materials supplied, are used in the Suppliers' processes, and/or come in contact with during the manufacture and subsequent handling of Pall purchased component or material, the Supplier must not ship the material or component unless a concession has been previously granted. Supplier must notify the Pall immediately in writing defining the substance and any other available information relative to concentration and how the substance is used.

F. Conflict Minerals – applicable to all materials provided by the supplier

The United States has enacted the **Dodd-Frank Wall Street Reform and Consumer Protection Act** ('The Act) which imposes certain additional reporting and due diligence requirements on US companies related to 'Conflict Minerals' - particular minerals of concern when originating from the Democratic Republic of Congo, Angola, Burundi, the Central African Republic, Congo, Rwanda, Sudan, Uganda, the United Republic of Tanzania or Zambia.

The minerals of concern are:

Columbite- tantalum (a source of tantalum)
Cassiterite (a source of tin)
Wolframite (a source of tungsten)
Gold

and their derivatives.

Pall requests that the Supplier advises Pall, in writing, if any of the above minerals or their derivatives are present in the material /article to be provide to Pall, or are used in the production of that material / article by their supply chain. If so used or present, please conduct a country of origin determination of that mineral and advises Pall if the source indicates it to be a 'Conflict Mineral'.

G. Jatropha Derived Material – applicable materials provided by the vendor

The supplier is responsible for consulting with their materials suppliers to determine if materials derived from Jatropha plant (such as oils, glycerine, or proteins) are used in the materials/article to be supplied to Pall. If the presence of materials derived from Jatropha plant is confirmed, the supplier must notify the appropriate Pall ordering facility in writing.

H. "State of California Environmental Protection Agency 'Office of Environmental Health Hazard Assessment - Safe Drinking Water and Toxic Enforcement Act of 1986'

The State of California, USA has certain labelling and notification requirements relating to chemicals known to the State to cause cancer or reproductive harm, which are listed on Prop-65.

If any substance on the current Prop-65 list or its derivatives, are known or suspected to be present in the article / materials supplied, are used in the Suppliers' processes, and/or come in contact with during the manufacture of Pall purchased component or material, the Supplier must notify the Pall, in writing, defining the substance and any other available information relative to concentration and how the substance is used."

Table 1. Controlled Substances

A	B	C	D
Antimony and antimony compounds including; Pryochlor, antimony lead yellow **Arsenic and arsenic compounds**[1] including: Triethyl arsenate Trilead diarsenate Calcium arsenate **Anthracene and Anthracene compounds** including: Anthracene oil Anthracene paste Anthracene Black Pitch Acrylonitrile Acrylamide Alkanes C_{10-13} (Short chain parafins) Short chain chlorinated parafins (SCCPs) Medium chain chlorinated parafins (MCCPs) 4-chloroaniline 2-methoxyaniline (o-anisidine) N,N,N',N'-tetramethyl-4,4'-methylene dianiline Acetic acid Methoxyacetic acid (MAA) 2-Ethoxyethyl acetate Dioctyl adipate 4,4'-oxydianiline and its salts 4 aminobiphenyl	**Beryllium and beryllium compounds**[1] **Bismuth and Bismuth compounds**[1] Bis(2,3-epoxypropyl ethers (BADGE compounds) Bisphenol A (BPA) Tetrabromobisphenol A (TBBP-A) 2-bromopropane 2,2 bis(4-hydroxyphenyl)propane Boric acid Borax 1,3-butadiene 1,2-dibromoethane Benzyl chloride Hexabromocyclodecane (HBCD) 1,bromopropane Biocidal materials or substances Benzo[a]pyrene Diboron trioxide Tetraboron disodium heptaoxide, hydrate n-propylbromide Tert-butyl 4-[({[(EO-(1,3-dimethyl-5-phenoxy-1H-pyrazol-4-yl)methylene]aminooxymethyl]benzoate	**Cadmium or cadmium compounds**[1] including: Cadmium sulphide Cadmium oxide Cadmium chloride Cadmium fluoride Cadmium sulphate **Cobalt and cobalt compounds**[1] including: Cobalt chloride Cobalt dichloride Cobalt sulphate Cobalt dinitrate Cobalt carbonate Cobalt diacetate **Chromium and chromium compounds**[1] and **Hexavalent chromium and Hexavalent chromium compounds**[1] including: Chromic acid Chromic acid-calcium salts Chromium (III) chromate Chromic acid-magnesium salts Dichromic acid Oligomers of chromic and dichromic acids Calcium chromate Calcium dichromate Coal tar pitch, high temperature Carbon monoxide Cyanuric acid Cyclododecane	Disodium octaborate anhydride Disodium octaborate tetrhydrate 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate (DOTE) Reaction Mass of DOTE and MOTE[2] 1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich 1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters (DHNUP) 1,2-Benzenedicarboxylic acid, dipentylester, branched and linear 1.2-Benezenedicarboxylic acid, dihexyl ester, branced and linear 5-sec-butyl-2-(2,4-dimethylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane[1],5-sec-butyl-2-(4,6-dimehtylcyclohex-3-en-1-yl)-5-methyl-1,3-dioxane[2][covering any of the individual stereoisomers of [1]and[2] or any combination thereof] Pentacosafluorotridecanoic acid Pentadecafluorooctanoic acid Tricosafluorododecanoic acid Henicosafluoroundecanoic acid Heptacosafluorotetradecanoic acid Perfluorononan-1-oic-acid (PFOA) and its sodium and ammonium salts Nonadecafluorodecanoic acid (PFDA) and its sodium and ammonium salts

E	F	G	H
Endocrine disrupting chemicals (EDCs) Epoxydised Soybean Oil (ESBO) **Glycol ethers and acetates** including: Ethylene glycol ethers and acetates Ethylene glycol ethyl ether acetate Ethylene glycol methyl ether acetate Ethylene glycol methyl ether Ethylene glycol mono ethyl ether Ethylene glycol dimethyl ether Ethylene oxide Butyl Glycidyl Ether (BGE) Diethylene glycol dimethyl ether Triglyme (TEGDME) 1,2-dimethoxyethene, ethene glycol dimethyl ether (EGDME) 2-ethoxyethanol Epichlorohydrin (1-chloro-2,3-epoxypropane) 1,2-Diethoxyethane Tetrachloroethylene Pentchlorobenzenethiol	Fenpyroximate (ISO) Fluorocarbon (solvents, release agents and lubricants) Basic Flavin Formaldehyde Formamide	Gallium arsenide Glycidol	Halogenated biphenyl methane compounds Hydrofluorocarbons (HFCs) Hydrazine Cyclohexane-1,2-dicarboxylicanhydride Hexahydrophthalic anhydride (HHPA) Hexahydromethylphthalic anhydride Hexahydro-4-methylphthalic anhydride Hexahydro-1-methylphthalic anhydride Hexahydro-3-methylphthalic anhydride
I Imidizole Imidazolidine-2-thione Isopene	**L** Latex **Lead and lead compounds**[1] including Lead hydrogen arsenate Lead azide Lead acetate Lead diacetate Lead diazide Lead styphnate Lead dipicrate Lead II bis methane sulfonate Lead tetoxide Lead cyanamidate Lead dinitrate Lead monoxide	**M** Melamine Melamine formaldehyde **Mercury and mercury compounds*** Dimethyl formamide (DMF) Dimethyl acetamide (DMAC) 4,4'-methylene bis(2-chloraniline) 2-methoxy-1-propanol	**N** N-Nitrosamine compounds Nonyl phenol Nonyl phenolethoxylate N-butyl benzene **Nickel and nickel compounds**[1] including: Nickel sulphate Nickel sulphide Nickel sub sulphide Nickel bis(sulphamidate) Nickel monoxide Nickel dioxide Nickel trioxide Nickel carbonate

	Lead oxide sulphate Lead titanium trioxide Lead titanium zircon oxide Lead bis(tetrafluoroborate) Trilead dioxide phosphonate Trilead bis(carbonate) dihydroxide Tetralead trioxide sulphate Tetraethyl lead Pentalead tetroxide sulphate Dibasic lead salt of sulfurous acid Lead silicate Lead stearate	2-methoxy ethyl acetate 2-methoxyethanol 4-methyl-m-phenylene diamine 2-methoxypropyl acetate Dimethyl sulfoxide (DMSO) 1-Methyl-2-pyrrolidone (NMP) n-methylacetamide (NMA)	Nickel carbonyl 2-naphthylamine Trinickel disulphide Tetracarbonyl nickel Nano-technology materials Nitrobenzene **and dinitrobenzenes**
O **Oils and corrosion prevention agents** Octylphenol Methyloxirane 3-ethyl-2-methyl-2-(3-methylbutyl)-1,3-oxazolidine Ammonium pentadecafluorooctanoate (APFO)	**P** **Phthalates of the type:** Bis(2-methoxyethyl) phthalate Dicyclohexyl phthalate Diethyl phthalate Dipentyl phthalate (DPP) Dipropyl phthalate Dimethyl phthalate Diamyl phthalate Dinonyl phthalate Di-n-octyl-phthalate Di-isodecyl phthlate (DIDP) Dihexyl phthalate (DHP) Diisopentylphthalate(DIPP) N-pentyl- isopentylphthalate 1,2-benzenedocarboxylic acid, di-C6-10-alkyl ester 2,3- benzenedocarboxylic acid, mixed decyl and hexyl and octyl diesters with greater than or equal to 0.3% of dihexyl phthalate Phenol (tetrapropenyl) derivatives Branched dodecyl phenol **Polybromimated flame retardants** including**;** pentabromodiphenyl ether octabromodiphenyl ether Bis(pentabromophenyl) ether (Deca-BDE) Polybromimated biphenyls (PBB) Polybromimated biphenyl ethers (PBDE)	**S** Stylene **Selenium and selenium compounds**[1] Silicone (oils, release agents and sprays) Sodium formaldehyde sulfoxylate Sodium hydroxide (Industrial) Sodium sulphide Sodium dichromate, dihydrate Sodium perborate Perboric acid, sodium salt, Sodium peroxometaborate Disodium tetraborate anhydrous Sodium thiocyanate Sulphur (Industrial) Diethyl sulphate Dimethyl sulphate Sulfurous acid, lead salt, dibasic Tributylstannyl benzoate	**T** Dibutyl tin chloride Trialkyl and triaryl tin compounds Thiurams Tantalum Tantalite Thallium Trichlorobenzene 1,2,3-trichloropropane Tetraboron disodium heptaoxide hydrate Tar oils and creosotes Toluene 4-nitrotoluene 2,3-dinitrotoluene 2,6-dinitrotoluene 3,5-dinitrotoluene Dinitrotoluene (mixed isomers) 2-aminotoluene 2,4-diaminotoluene Trichlorotoluene Methylphenylenediamine diaminotoluene mixture (CAS 25376-45-8)

	Polybromimated terphenyls (PBTs) PVC Vinyl chloride PVDC Pericarpium papaveris Potassium bromate Perchloroethylene Propyl bromide Propyl imine Propyleneimine Propylene oxide Pentachlorophenol Tri-(2,3-dibromo-propyl)phosphate Tris-(1-aziridinyl) phosphineoxide Tributyl phosphate Phenolphthalein 4-(1,1,3,3-tetramethylbutyl)phenol 4-(1,1,3,3-tetramethylbutyl)phenol etoxylated (4-tert-octylphenol) 4-nonylphenol branched and linear 4-nonylphenol branched and linear ethoxylated 1,3-propanesultone 1,2,3-trichloropropane 4,4'-isopropylidenediphenol 4,heptylphenol, branched and linear para-(1,1)dimethylpropyl phenol		o-Toluidine 4,4'-methylenedi-o-toluidine 6-methoxy-m-toluidine Trixylyl phosphate TGIC (1,3,5-tris(oxiranylmethyl 1,3,5-triazine-2,4,6-(1H,3H,5H)-trione Beta-TGIC (1,3,5-tris[(2s and 2R)2,3-epoxy propyl)]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione **Z** **Zinc and zinc compounds[1] including:** 4-(1,1,3,3-tetramethylbutyl)phenol,(4-tert-octylphenol)

UV adsorbers:	Fibers	Dye stuffs; Industrial	Other
2,4-di-tert-butyl-6-(5-chlorobenzotriazol-2-yl)phenol (UV-327)	Quartz	Acid orange	4,4'-bis-(dimethylamino)benzo phenone
2-(2H-benzotriazol-2-yl)-4-(tert-butyl)-6-(sec-butyl)phenyl (UV-350)	Ceramic Fibres (CAS 66402-68-4)	Basic Violet 3	4,4'-bis(dimethylamino)-4''-methylamino)trityl alcohol
2-(2H-benzotriazol-2-yl)-4,6-ditertpentylphenol (UV-238)	Aluminosilicate Refractory Ceramic Fibres (RCF)	Basic Blue 26	Silicic acid (H2Si2O5), barium salt (1:1), lead-doped [with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD)
2-benotriazol-2-yl-4,6-di-tert-butylphenol (UV-320)	Refractory ceramic fibres (CAS 142844-00-6)	Basic Orange	Cyclohexane-1,2-dicarboxylic anhydride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3] [Individual cis- [2] and trans- [3] isomer substances and all possible combinations of the cis- and trans-isomers [1] are covered
	Special purpose 475 Glass Fibers	Basic yellow	
	Special purpose E-Glass Fibers	Direct Red 28	
	Zirconium aluminosilicate Refractory Ceramic Fibres (Zr-RCF)	Direct Black 38	
		Malachite green	
		Phthalcocyanine Green	
		Sudan Red	
		Solvent Blue 4	
		Rhodamine B	
		Azo compounds	

NOTES –

'1', Where stated 'and their compounds' please advise any of compounds of this substance known to be present – please do not limit to the examples given. Beryllium or beryllium compounds, Cadmium or cadmium compounds, Hexavalent chromium or hexavalent chromium compounds, Lead or lead compounds, Mercury or mercury compounds.

CONEG (Coalition of Northern Governors) requirements of less than 100 ppm for total incidental cadmium, chromium, lead and mercury.

EU Restriction of Hazardous Substances in Electronic and Electrical Equipment **EU directive 2011/65/EU** (ROHS2) requirements for concentrations of lead, cadmium, mercury, hexavalent chromium and requirements for polybrominated biphenyls(PBBs) and polybrominated biphenyl ethers (PBDE) and various phthalate substances, must be less than:

Lead limit	0.1% (1000ppm)
Mercury	0.1% (1000ppm)
Hexavalent chromium	0.1% (1000ppm)
Cadmium	0.01% (100ppm)
Polybrominated biphenyls(PBBs)	0.1% (1000ppm)
Polybrominated biphenyl ethers (PBDE)	0.1% (1000ppm)
DEHP	0.1% (1000ppm)
BBP	0.1% (1000ppm)
DBP	0.1% (1000ppm)
DIBP	0.1% (1000ppm)

Batteries limit Cadmium 20ppm and Mercury 5ppm

'2', Reaction mass of 2-ethylhexyl 10-ethyl-4,4-dioctyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate and 2-ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-octyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate(reaction mass of DOTE and MOTE)

Table 2. Disallowed Substances

A	B	C	D	E
Aldrin **Azo compounds** including; Azo dicarbonamide o-amino azo toluene Antistaic agents*** 4-aminodiphenyl **Asbestos and asbestos fibres*** Diarsenic pentoxide Diarsenic trioxide Arsenic acid 2,2'-dichloro-4,4'methylenedianiline (MOCA)	Bis(tributyl tin oxide) Bis(hydroxyphenyl)methane bis(2,3-epoxypropyl) ethers (BFDGE) Benzene and polyaromatic hydrocarbons (PAH) Benzidine Bis(chlormethyl) ether Beta-naphthylamine 2,2H-1,2,3-benzoytiazol-2-yl-4,6-di-tert-butylphenol	Chlordane Chlorinated paraffin Chlordecone Chlorofluorocarbon (CFC) Chromium (VI) trioxide Dichromium (tris) chromate Oligomers of chromic and dichromic acids Ammonium dichromate Potassium dichromate Potassium chromate Potassium hydroxyoctaoxodizincated dichromate	Dyes: Red 104 Yellow 34 Dieldrin Dioxins and cogeners 1,4-dioxane N,N-dilolyl-p-phenyldiamine Dimethyl fumarate (also know as 2-butenedioic acid dimethyl ester) (DMF)	Endrin Bis(2-methoxyethyl)ether 1,2-Dichloroethane (EDC)
F Furans and cogeners Sulphur hexafluoride Fungicides Freon 150 Formaldehyde, oligomeric reaction products with aniline	**H** Herbicides Halon 1211 Halon 1301 Heptachlor Hexachlorobenzene Hexabrombiphenyle Highly volatile halogenated hydrocarbons Hydrochlorofluorocarbon (HCFC) 2-(2'-hydroxy-3'5'-di-tert-butylphenyl)benzotriazole Hexachlorobuta-1,3-diene Hexabromocyclododecane (HBCDD)	**I** **Insecticides** including: DDD DDE DDT **L** Lead chromate	**M** Mirex Musk xylene 4,4-diaminodiphenyl methane (MDA)	**N** Novolac glycidyl ethers (NOGE) 4-nitrodiphenyl

O	P	R	T	Y
Organic tin compounds - Tributyl tin Triphenyl tin **Ozone depleting substances****	Polychlorinated biphenyls (PCBs) Polychlorinated terphenyls (PCTs) **Pesticides** Polychloinated and polybrominated dioxins and furans Polychlorinated napthalenes PFOS Perfluoro octanoic acid (PFOA) **Phthalates of the type:** Butyl benzy phthalate (BBP) Dibutyl phthalate (DBP) Diisobutyl phthalate (DIBP) Dioctyl phthalate (DOP) Bis(2-ethylhexyl) phthalate (BEHP) Di-2-ethylhexyl-phthalate (DEHP) Di-iso-nonyl phthalate (DINP)	**Radioactive substances** **Rodenticides** **S** Sodium chromate Sodium dichromate, anhydrate Strontium chromate	Toxaphene Thiocyanic acid (2-benzothiazolythiomethylester) (TCMTB) 2,4,6-tri-tert-butylphenol Trichloroethylene m-tolyidene diisocyanate 2,4-dinitrotoluene Tris(2-chloroethyl) phosphate (TECP)	Yellow phosphorus Z Pentazinc chromate octahydroxide

NOTES –

***Asbestos / Asbestos fibers** – Material must not contain any asbestos fibers or be in contact with material containing asbestos during processing.

** **Ozone depleting substances** (general) including but not limited to – Polybrominated flame retardants, Polybromobiphenyl (PBBs), Polybromobiphenyl ethers (PBBE), Polychlorobiphenyls (PCBs), Polychloroterphenyls (PCTs)

*** **Antistatic agents** – activated carbon is permitted for use. Please therefore advise Pall of the nature of the antistatic to confirm it is specifically disallowed.