

Vestas Prohibited and Restricted Substance document			Document ID: 0005-4934 INS SUS-CHM-CRP
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Version history

Version No.	Date	Description of Changes
08	2021-01-01	Renamed the document. The contents of the document rephrased. Prohibited substance list table has been updated and the affected product, threshold limit, effective date columns introduced. Restricted material list DMS#0064-0319 has been merged with this document. Contact has been introduced.

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1. Purpose

The purpose of this instruction (INS) is to provide requirements to manage the Substances and Mixtures which are considered prohibited or restricted in Vestas.

2. Scope

The Substances listed in section 6 of this document are Prohibited completely or Prohibited only in certain application with threshold limit. It is mandatory to exclude the Prohibited Substances listed in section 6 of this document from all Vestas materials supplied to and/or manufactured by Vestas or intended for use in Vestas products. This document also provides information about Vestas Restricted Substances and Restricted Hazardous classification.

If any country allows the Substances listed in Prohibited list, it will be considered as a Restricted Substance for that country, not as a Prohibited Substance.

3. Document requirement for compliance

Upon Vestas request supplier shall provide full clarification on Substances involved, irrespective of whether a SDS is required or not.

If the supplier is not able to deliver a full material declaration, the supplier must sign a statement of fulfilment to the Vestas Prohibited and Restricted Substance document.

Supplier commits to avoid sourcing tin, tantalum, tungsten and gold or other conflict minerals emanating from mining operations in conflict affected and high-risk areas, hereunder the Democratic Republic of the Congo (DRC) and adjoining countries. Refer to Supplier Purchase agreement for required due diligence measures.

Dispensations: If a product fulfils the criteria under the restricted category specified in section 5 (Table 1 & 2), then a Dispensation must be filled out by Vestas before the product is purchased. The Supplier must deliver SDS and information needed for Vestas to assess the HSE risks associated with the Products. The guideline for the Dispensation can be found at DMS#0053-6243.

4. Interested Parties

Power Solution
Service & Construction
Manufacturing
Global Procurement

5. Restricted Substances and Classification

This section 5 contains two tables. The first table contains specific Substances with very high focus from the authorities for being phased out and is likely to be prohibited or restricted for certain use in the future and these are therefore also Restricted in Vestas. The second table contains specific overall hazards classifications which makes a product Restricted in Vestas.

Table 1: Restricted Substances list

Substance group	Substance	Threshold	Effective date
EU REACH Candidate list https://echa.europa.eu/candidate-list-table	All Substances in the list	0.1%	Immediate
Composites <ul style="list-style-type: none"> - The restriction does not apply to materials used for maintenance and repair. - In the manufactured product, monomeric styrene is converted to polymeric styrene and the finished products are not subject to the restriction 	Styrene and polyester (Monomeric)	-	Immediate

Table 2: Restricted Hazard Classification (GHS/CLP) list

Hazard category	H-code	Hazard statement	
Health Hazard			
Toxic	H300	Fatal if swallowed	
	H301	Toxic if swallowed	
	H310	Fatal in contact with skin	
	H311	Toxic in contact with skin	
	H330	Fatal if inhaled	
	H331	Toxic if inhaled	
	H370	Causes damage to organs	
	H372	Causes damage to organs through prolonged or repeated exposure	
Sensitizing	H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled	
Mutagenic	H340	May cause genetic defects	
	H341	Suspected of causing genetic defects	
Carcinogenic	H350	May cause cancer	(ACGIH A1 and A2), IARC (Group 1, 2A and 2B)
	H351	Suspected of causing cancer	
Reproductive toxic	H360	May damage fertility or the unborn child	
	H361	Suspected of damaging fertility or the unborn child	
	H362	May cause harm to breast-fed children	
Physical Hazard			
Explosives	Several		
Environmental Hazard			
Aquatic	H400	Very toxic to aquatic life	
	H410	Very toxic to aquatic life with long-lasting effects	
Ozone depleting	EUH059	Hazardous to the ozone layer, superseded by GHS Class 5.1 in the second adaptation to technical progress of CLP.	

6. Prohibited Substance list

This section 6 identifies Substances and its related applications that are currently prohibited as well as some that will become prohibited at a specified future date according to specific legislation. This means that the specific legislation does not allow the use of these Substances in specific applications. Once the specific future date expires, the prohibition is effective immediately.

The threshold limit of Substance in an article is calculated %w/w at an article level. For complex object, the definition provided by Court of Justice of the European Union on September 10th, 2015 is applicable. For all the EU RoHS listed substances the threshold limit is calculated at the homogenous material level.

Sl. no	Substance category	Affected product and application	Threshold (percentage)	Effective date
0.1	List of Persistent Organic Pollutants (POPs) according to Stockholm Convention (Ref01)	(Ref01)	(Ref01)	(Ref01)
0.2	List of Banned or Restricted Chemicals according to the Rotterdam Convention (Ref02)	(Ref02)	(Ref02)	(Ref02)
0.3	List of Substances included in Annex XIV of REACH (Authorisation List) https://echa.europa.eu/authorisation-list	All products	0%	Immediate
1	Aromatic amines or their salts a) Benzidine, its derivatives and salts. b) 2-Naphthylamine and its salt c) 4-Nitrobiphenyl and its salt d) 4-Aminobiphenyl xenylamine and its salt	All products For (b,c,d): All Products	0% (Ref03) 0.1 %	Immediate Immediate
2	Arsenic and its compounds https://www.ncbi.nlm.nih.gov/books/NBK304380/table/a006.T001.001/?report=objectonly	All Products	0.1	Immediate
3	a) Asbestos forms-fibres b) Asbestos forms – Minerals (Ref04)	a) All Products (e.g. including Dry Friction Materials, etc.) b) All Products with potential to form Asbestos Fibers (e.g. including Dry Friction Materials, etc.)	0% (Ref04) 0% (Ref04)	Immediate Immediate
4	a) Benzene - Non-Fuel products other than after-market cleaning and textile products	a) All non-fuel products except when present in textiles with skin contact or when present in aftermarket consumer cleaning products.	a) 0.1%	Immediate (for both section)

	b) Benzene – Fuel products	b) All fuels (Ref05)	b) Various (Ref05)	
5	Biocidal products (Ref06)	Products for use in the EU containing biocidal substances that are not approved for one or more product type specified in Annex-V of the BPR or where approvals have expired (Ref06)	0% (Ref07)	Immediate
6	Biologically Active Materials (A compound that exerts a direct physiological effect on a plant, animal or another microorganism)	All Product	0.1%	Immediate
7	Cadmium and its compounds Cadmium (expressed as Cd metal)	a) plastic materials (such as PVC, PUR, PE, PET, PBT, PP), brazing fillers, metal beads. b) In Paints c) cadmium plating metallic articles or components of the articles. For exemption, refer Annex III of EU RoHS exempted application list.	0.01% 0.01% 0%	Immediate Immediate Immediate
8	Chlorinated Alkanes/Alkenes (a) Short-Chain Chlorinated Alkanes/Alkenes (SCCA) (b) Mid-Chain Chlorinated Alkanes (MCCA: C14-C17) and Long-Chain Chlorinated Alkanes (LCCA: C18-C20). (c) Very Long-Chain Chlorinated Alkanes (vLCCA: C>20) (d) Chlorinated Alkanes of an Unspecified Chain Length	All products	0% (Ref07)	Immediate

	(e) Substances related to chlorinated alkanes that might contain Short Chain Chlorinated Alkanes/Alkenes (SCCAs)			
9	Chlorinated Hydrocarbons (Chemical compounds of chlorine, hydrogen, and carbon atoms only)	a) All products including Cleaning Products (<i>Ref08</i>) b) Paint strippers	0% 0.1%	Immediate Immediate
10	Chlorinated Naphthalene	All products	0% (<i>Ref07</i>)	Immediate
11	Chlorinated or brominated Dioxins or Furans	All products	0% (<i>Ref07</i>)	Immediate
12	Chloroform and its related substances 1,1,2-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,1,2-Tetrachloroethane Penta chloroethane 1,1-Dichloroethene	All Products	0.1%	Immediate
13	Chromium (VI) (Cr+6; Hexavalent) and its compounds (<i>Ref09</i>)	All Products except cement additives and leather articles	0.1% (<i>Ref09</i>)	Immediate
14	Dichloro-diphenyl-trichloro-ethane (DDT)	All products	0% (<i>Ref07</i>)	Immediate
15	Dichloromethane	In Paint Strippers	0.1%	Immediate
16	1,4-Dichlorobenzene	In air freshener or deodoriser in toilets, offices or other indoor public areas	0.1%	Immediate
17	Dimethyl fumarate (DMF)	All Products	0.1 (mg/kg)	Immediate
18	Dibutyltin hydrogen borate C ₈ H ₁₉ BO ₃ Sn (DBB)	All products	0.1 %	Immediate
19	Diphenylether, octabromo derivative C ₁₂ H ₂ Br ₈ O	All Products	0.1%	Immediate
20	Fluorinated Green House Gases (<i>Ref10</i>)	All products For exemption (<i>Ref11</i>)	0%	Immediate

21	a) Formaldehyde	a) Textiles (PPE) under normal or reasonably foreseeable conditions of use, that meet human skin to an extent like clothing.	0.003%	Immediate
		b) Textiles that do not meet skin.	0.03%	Immediate
		c) Any preservative or biocidal applications except for use as a disinfectant and algacide not intended for direct application to humans in the EU.	0%	Immediate
	b) Formaldehyde reaction products	All Products	0.1%	Immediate
22	Glycol and Glycol Ethers			
	a) Bis(2-methoxyethyl) ether	a) All Products	0.1%	Immediate
	b) 2-Methoxyethanol (2ME)	b) All Products except semiconductors. In semiconductors 0.5% is allowed.	0%	Immediate
23	Halogenated polyphenyls, diphenyl ethers and phosphates.			
	a) Hexabromo-cyclododecane (HBCDD).	All products	0%	Immediate
	b) Polybrominated biphenyls (PBB)	All products	0%	Immediate
	c) Polybrominated diphenyl ethers (PBDE)	All Products	0%	Immediate
	d) Bis(pentabromophenyl) ether decabromodiphenyl ether; decaBDE)	All Products	0%	Immediate
	e) Polychlorinated biphenyls (PCB)	All Products	0%	Immediate
	f) Polychlorinated terphenyls (PCT)	All Products	0.005%	Immediate
	g) Tris(2,3-dibromopropyl) phosphate [TRIS]	All Products	0%	Immediate

	h) Tris(2-chloroethyl) phosphate	All Products	0%	Immediate
24	Hexachloroethane	Manufacturing & Processing of non-ferrous metals	0%	Immediate
25	Tris(aziridiny) Phosphin oxide	All products	0%	Immediate
26	Lead and its compounds	a) All products (Ref12) b) Paints and products intended for use in paint	0.1% 0%	Immediate Immediate
27	Mercury and its compounds	All products (Ref12)	0%	Immediate
28	Methylcyclopentadienyl manganese tricarbonyl (MMT)	Fuel in EU According to EU's fuel quality law-2014	0.002% Mn/L	Immediate
29	Monomethyl-dichloro-diphenyl methane (Ugilec 121)	All products	0%	Immediate
30	Monomethyl-dibromo-diphenyl methane bromobenzylbromotoluenemixture of isomers (DBBT)	All products	0%	Immediate
31	Monomethyl – tetrachlorodiphenyl methane (Ugilec 141)	All products	0%	Immediate
32	Methylenediphenyl diisocyanate (MDI) and its specific isomers. https://echa.europa.eu/substance-information/-/substanceinfo/100.239.193	Refer REACH Annex XVII entry 56.	Refer REACH Annex XVII entry 56.	Immediate
33	N,N-dimethylacetamide (DMAC)	Textiles (including PPE) that meet human Skin	0.3%	Immediate
34	Nickel and its compounds	Articles coming into direct and prolonged contact with the skin or Component surfaces likely to be routinely touched, e.g., handles and buckles (Ref13)	0.5 ug/cm ² /week (Ni release rate threshold) (Ref14)	Immediate

35	N-Nitrosamines/N-Nitrosamides and Nitrosating agents. (Ref15)		0%	Immediate
	a) N-Nitrosamines/N-Nitrosamides	a) Corrosion inhibitors, anticorrosion greases, waxes and other agents, metal working fluids, and water-miscible or water-mixed cooling lubricants, containing mixtures of nitrites and amines/ amides that may form NNitrosamines / Nitrosamides		
	b) Nitrosating Agents	b) Corrosion inhibitors, anticorrosion greases, waxes and other agents, metal working fluids, and water-miscible or water-mixed cooling lubricants, containing mixtures of nitrites and amines/ amides that may form NNitrosamines / Nitrosamides.	0%	Immediate
	c) N-Nitrosodimethylamine which has the molecular formula C ₂ H ₆ N ₂ O	c) All Products	0% (Ref07)	Immediate
36	Nonylphenol & Nonylphenol ethoxylates (NPE)	Detergent (surfactants) and cleaners, metal working products, co-formulants of pesticides and biocides, Cooling Tower Chemicals and WWTP chemicals, and any products added to waters that enter surface waters, cooling towers, and/or WWTP.	0.1%	Immediate
37	Octyl phenols and their ethoxylates	All Products (Subject to future REACH authorization)	0.1%	Immediate
38	Organostannic compounds	The substance or mixture mentioned in this section (a to d) are prohibited to use as acting as biocide in free association paint or when used to treat industrial waters.	0% (Ref16)	Immediate
			0.1%	Immediate

	<p>a) Tri-substituted organostannic compounds such as tributyltin (TBT) compounds and triphenyltin (TPT) compounds.</p> <p>b) Dibutyltin (DBT) compounds</p> <p>c) Dioctyltin (DOT) compound</p> <p>d) Other triorganotin compounds (not tributyltins)</p>	<p>a) All Products</p> <p>b) All Products</p> <p>c) Textile articles intended to meet the skin. [Gloves, footwear, wall and floor covering, two-component room temperature vulcanization molding kits]</p> <p>d) All products</p>	<p>(Ref16)</p> <p>0.1% (Ref16)</p> <p>0.1% (Ref16)</p> <p>0% (Ref16)</p>	<p>Immediate</p> <p>Immediate</p> <p>Immediate</p>
39	<p>Ozone Depleting Substance</p> <p>Ozone Depleting Substances (Class I), Montreal Protocol: Annex A: All, Annex B: All, Annex C: Groups II and III, Annex E: All</p> <p>Ozone Depleting Substances (Class II): Montreal Protocol Annex C Group I (HCFCs). (Ref17)</p>	All Products - except those used to service existing equipment where legally permitted	0% (Ref07)	Immediate
40	Pentachlorophenol (PCP) its salts and esters	All Products	0.1%	Immediate
41	<p>Perfluoroalkyl compounds (Includes: Perfluoroalkyl sulfonates e.g., PFAS, fluorotelomers, and telomere-based polymeric substances)</p> <p>a) Perfluoro-octanoic acids (PFOA), its salts, precursors and higher homologues (Ref18)</p>	<p>All products</p> <p>i. All non-dimensional products</p> <p>ii. All products (subject to future prohibition, see effective date)</p>	<p>0% (Ref07)</p> <p>0%(Ref07)</p> <p>0%(Ref07)</p>	<p>Immediate</p> <p>Immediate</p> <p>Immediate</p>

	<p>b) Perfluorooctane sulfonic acid (PFOS) and its derivatives C₈F₁₇SO₂X (X = OH, Metal salt (O-M⁺), halide, amide, and other derivatives including polymers)</p> <p>c) Long-chain (C₈-C₂₁) PFCAs, their salts, and their precursors (Ref19)</p>	<p>b) All products</p> <p>All Non-Dimensional Products</p>	<p>0% (Ref07)</p> <p>0% (Ref07)</p>	<p>Immediate</p> <p>Immediate</p>
42	<p>Phthalates:</p> <p>Bis(2-ethylhexyl) phthalate (DEHP) Dibutyl phthalate (DBP) Benzyl butyl phthalate (BBP) Diisobutyl phthalate (DIBP) Di-isononyl' phthalate (DINP) Di-isodecyl' phthalate (DIDP) Di-n-octyl phthalate (DNOP) (Ref20)</p>	All Products	0.1%	Immediate
43	<p>Polycyclic aromatic hydrocarbons (PAH; PCAH) (Ref21)</p>	<p>a) Paints and varnishes.</p> <p>b) Accessible Plastic or rubber parts for industrial uses and supply to the aftermarket (Ref22-i, ii)</p> <p>c) Accessible parts with direct access to the human body (Ref22-i, ii)</p> <p>d) Deadner pads supplied to the APAC region (Ref22-ii)</p> <p>e) All Products (Upcoming REACH Authorization)</p> <p>f) Extender oil</p>	<p>0.01% total listed PAHs</p> <p>0.0001% BaP and 0.001% total listed PAHs</p> <p>0.0001% BaP and 0.001% total listed PAHs</p> <p>0.0002% BaP and 0.02% the sum of other listed PAH (Ref22-iii)</p> <p>0.1%</p> <p>0.0001%</p>	<p>Immediate</p> <p>Immediate</p> <p>Immediate</p> <p>Immediate</p> <p>Immediate</p> <p>Immediate</p>

			BaP and 0.001% total listed PAH	
44	Products of Endangered Species. (Endangered species) (Ref23)	All Products	0% (Ref07)	Immediate
45	n-propyl bromide	All Products (upcoming REACH authorization)	0.1%	Immediate
46	2-Pyrrolidinone, 1-methyl- (NMP)	<p>a) All non-dimensional products in the EU except for use as a solvent or reactant in the process of coating wires.</p> <p>b) Textiles (PPE) under normal or reasonably foreseeable conditions of use, that meet human skin to an extent like clothing in the EU only</p> <p>c) Solvents or reactants used in the EU for the process of coating wires</p> <p>d) Paint strippers used in the EU for the removal of PAH containing coatings.</p>	<p>0.3%</p> <p>0.3%</p> <p>0.3%</p> <p>0%</p>	<p>Immediate</p> <p>Immediate</p> <p>9-May-2024</p> <p>Immediate</p>
47	Radioactive isotopes and substances, all members	All Products, including scrap metal contaminants. Excludes substances and devices used in the manufacturing process.	(Ref24)	Immediate
48	Silica, Crystalline – Quartz (Ref 25)	Materials used in abrasive blasting (Ref 25)	1%	Immediate
49	5-tert-butyl-2,4,6-trinitro-m-xylene (Musk xylene)	All products	0.1%	Immediate
50	Trichlorobenzene	All Products except the usage in intermediate synthesis/process.	0.1%	Immediate
51	Vinyl chloride (Chloroethene)	a) Aerosol	0 % 0%	Immediate Immediate

		b) All products-Thailand and Australia only	0.0005%	Immediate
		c) Vinyl chloride monomer content in the polyvinyl chloride layer of artificial leather	(5ppm as monomer)	

7. Contacts

Please contact chemicalforum@vestas.com for any questions related to this document.

8. Reference

Ref 01	<p>Currently there are over 30 chemicals on the List of Persistent Organic Pollutants (POPs) in the Stockholm Convention (up to Jul 2019).</p> <p>Annex A (Elimination): The production and use of chemicals on annex A must be eliminated unless there are specific exemptions; Annex B (Restriction): The production and use of chemicals on annex B must be restricted; Annex C (Unintentional Production): Measures must be taken to reduce the unintentional releases of chemicals on Annex C. Once a hazardous substance is added to Annex A, it will face a global ban.</p> <p>http://chm.pops.int/TheConvention/ThePOPs/ListingofPOPs/tabid/2509/Default.aspx</p>
Ref 02	<p>There are total of 52 chemicals listed in Annex III, 35 pesticides (including 3 severely hazardous pesticide formulations), 16 industrial chemicals, and 1 chemical in both the pesticide and the industrial chemical categories.</p> <p>http://www.pic.int/TheConvention/Chemicals/AnnexIIIChemicals/tabid/1132/language/en-US/Default.aspx</p>
Ref 03	<p>Benzidine and Benzidine Dihydrochloride are prohibited at any concentration if intentionally added at any concentration for the Canadian market. Benzidine or its salts are prohibited above 0.002% for all other markets.</p> <p>Note: "Intentionally added" means all substances directly added to the formulation.</p>
Ref 04	<p>The following are the common industry standards for determining presence of asbestos fibers within materials: EPA 600/R-93/116 (as amended) is the industry standard in the US (and most countries with asbestos regulation) or NIOSH 9002. Appropriate quantitative analysis of asbestos by the EPA/NIOSH methods can include point counting, Transmission Electron Microscopy (TEM) or Scanning Electron Microscopy (SEM).</p>
Ref 05	<p>Allowable benzene levels in fuel are subject to regional regulations such as EU-D 98/70/EC. So please follow your local legislation guideline.</p>
Ref 06	<p>Requirements apply only to intended use as a biocide in a treated article or biocidal product, as defined by the Biocidal Products Regulation (BPR) EU-R 528/2012 and its amendments. The authorization and/or prohibition is dependent upon the substance, the end use (product type) and a supplier authorization. Substance/product type approval status can be found at:</p> <p>http://echa.europa.eu/information-on-chemicals/biocidal-active-substances.</p>

Ref 07	<p>If intentionally added at any concentration.</p> <p>“Intentionally added” means all substances directly added to the formulation.</p> <p>“Incidental presence” means a residual, a trace contaminant or impurity that was not intentionally added to the formulation.</p>
Ref 08	<p>See SR 814.81 Chemical Risk Reduction Ordinance (https://www.admin.ch/opc/en/classified-compilation/20021520/index.html) for products defined as cleaning products in article 3- Annex 2.2.</p>
Ref 09	<p>A maximum value of 0.1% by weight, of Hexavalent Chromium, per homogenous material will be tolerated, (this percentage is based on the weight of the coating containing the Hexavalent Chromium, not the part weight).</p> <p>https://www.ncbi.nlm.nih.gov/books/NBK304377/table/a009.T001.001/?report=objectonly</p>
Ref 10	<p>It includes the hydrofluorocarbons, perfluorocarbons, Sulphur hexafluoride and other greenhouse gases that contain fluorine. For detailed list refer Annex I,II of EU No 517/2014 (F-Gas regulation).</p>
Ref 11	<p>For exemption, refer the ANNEX III of EU No 517/2014 (F-Gas regulation)</p>
Ref 12	<p>For exemption refer ANNEX III of ROHS DIRECTIVE 2011/65/EU</p> <p>Once the exemption date expires the prohibition is effective immediately regardless of Product type.</p>
Ref 13	<p>Nickel Substances are not prohibited but are subject to a Nickel release rate threshold of 0.5 ug/cm²/week.</p>
Ref 14	<p>The nickel release rate shall be determined by test method BS EN 1811:2011 +A1:2015. The method can be obtained at http://shop.bsigroup.com/ProductDetail/?pid=000000000030316120</p>
Ref 15	<p>See regulations TRGS 611: Restrictions on the use of water-miscible or water-mixed cooling lubricants whose use can result in the formation of N-nitrosamines (http://www.baua.de/de/Themen-von-A-Z/Gefahrstoffe/TRGS/TRGS-615.html) and TRGS 615: Restrictions on the use of anticorrosion agents whose use can lead to the formation of N-nitrosamines for classes of nitrosating agents (http://www.baua.de/en/Topics-from-A-to-Z/Hazardous-Substances/TRGS/TRGS-611.html).</p>
Ref 16	<p>EU REACH Amendment 276/2010 Annex XVII specifies that content at or above 0.1% by weight of tin is prohibited. The calculation of the tin content in the substance is done using the molecular weight of both tin and the substance.</p>
Ref 17	<p>Ozone Depleting Substances (ODS) - are defined as chemicals that have been linked to the depletion of the stratospheric ozone layer, and restricted under the 1987 Montreal Protocol, listed by U.S. Environmental Protection Agency regulations under 40 Code of Federal Regulations, Part 82, Appendix F to Subpart A, and addressed by the European Union Directive-1005/2009/EC, chemicals are collectively identified as ozone depleting substances (ODSs) and include CFCs</p>

	(chlorofluorocarbons), HCFCs (hydrochlorofluorocarbons) and several brominated-carbons including Halons
Ref 18	Includes all substance meeting the following definitions specified in PCTSR Schedule 2.1 - Perfluorooctanoic acid, which has the molecular formula $C_7F_{15}CO_2H$, and its salts; and - Compounds that consist of a per-fluorinated alkyl group that has the molecular formula C_nF_{2n+1} in which $n = 7$ or 8 and that is directly bonded to any chemical moiety other than a fluorine, chlorine or bromine atom. https://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-285/page-5.html#h-788662
Ref 19	Includes all perfluoro carboxylic acids that have the molecular formula $C_nF_{2n+1}CO_2H$ in which $8 \leq n \leq 20$ and their salts as specified in PCTSR Schedule 2.1. https://laws-lois.justice.gc.ca/eng/regulations/SOR-2012-285/page-5.html#h-788662
Ref 20	The overall threshold for these listed phthalates and other substances as defined in the REACH regulation Annex XVII, entry 51,52 is 1000 mg/kg. This threshold applies to each listed substance individually or in combination with other phthalates listed in that entry or in other entries of Annex XVII that are classified in Part 3 of Annex VI to Regulation (EC) No 1272/2008 in any of the hazard classes carcinogenicity, germ cell mutagenicity or reproductive toxicity, category 1A or 1B.
Ref 21	Regulations prohibiting the use of PAH include EU-R 1907/2006 and its amendments and Directive 2005/69/EC: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:323:0051:0054:EN:PDF
Ref 22	<ul style="list-style-type: none"> i. Applies to Parts or articles with predictable direct and prolonged or short-term repetitive contact with the human skin or the oral cavity under normal or reasonably foreseeable conditions of use to meet the threshold listed in REACH Annex XVII. ii. PAHs should not be used for deadener pads in APAC countries above threshold noted. iii. Protection tools are recommended for operators who may have long-term skin contact, during the manufacturing process, with products potentially containing PAHs.
Ref 23	Includes any substance or material that originates from an endangered species. Lists of endangered species include: <ol style="list-style-type: none"> 1. Latest "International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species: http://www.redlist.org 2. European Union (EU) Regulation 338/97 on the protection of species of wild fauna and flora by regulating trade therein, and in its amendments. 3. United States Endangered Species Act. 4. UNEP-WCMC Species Database

	http://sea.unep-wcmc.org/species/dbases/about.cfm .
Ref 24	<p>All products, including scrap metal contaminants: Radioactivity should meet "Unconditional Use Clearance Level" requirements consistent with International Atomic Energy Agency (IAEA) and the Commission of European Communities (CEC) standards for individual radionuclides IAEA-TECDOC-855 (1996) & Safety Series RS-G-1.7 (2004).</p> <p>Radioactive sources used in manufacturing processes are exempted if they meet exemption levels. Exempted sources typically include small sources of radiation such as tracers used in research, calibration sources and some consumer products containing small sources or low levels of activity per unit mass. The corresponding levels of activity or activity concentration are called exemption levels.</p>
Ref 25	<p>https://www.cdc.gov/niosh/topics/silica/infographic.html</p> <p>https://www.cdc.gov/niosh/docs/75-122/default.html</p>

9. Definitions

ACGIH	American Conference of Governmental Industrial Hygienists
Aquatic	It is effects of a chemical substance to aquatic species which is usually determined on organisms representing the three trophic levels, i.e. vertebrates (fish), invertebrates (crustaceans as Daphnia) and plants (algae)
Article	<p>An object to which, during the manufacturing process, is given a shape, surface or design which is more determining for its function than its chemical composition " Article3(3).</p> <p>https://echa.europa.eu/documents/10162/23036412/articles_en.pdf/cc2e3f93-8391-4944-88e4-efed5fb5112c</p>
BIOCIDES	Additives intended to prevent or restrict microbiological growth
Carcinogenic	<p>Carcinogens are substances, mixtures and materials that have the potential of causing cancer by exposure through any route and/or those classified as carcinogens by any applicable regulation.</p> <ul style="list-style-type: none"> Any member of Group 1, 2A, or 2B in the latest edition of Monographs of the International Agency for Research on Cancer (IARC). Any substance/mixture listed as carcinogen in EU – CLP Regulation No. 1272/2008 Annex VI. Any "A1", "A2" or "A3" carcinogen listed by the American Conference of Governmental Industrial Hygienists (ACGIH) in the latest edition of Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices.
Complex Object	<p>Complex Object is an object made up of more than one article. In complex objects, several article can be joined or assembled together in various manners. The CJEU's decision sides with the "once an article, always an article" approach is applicable.</p> <p>http://curia.europa.eu/juris/document/document.jsf?jsessionid=9ea7d0f130d5234cdde93ebf4656b055b5270aa9d53c.e34KaxiLc3eQc40LaxqMbn4ObNiT</p>

	e0?text=&docid=167286&pageIndex=0&doclang=en&mode=req&dir=&occ=first&part=1&cid=144587
Dispensation	Vestas's internal process for chemical products that are restricted as described in section 5. Users can contact chemicalforum@vestas.com for clarification.
Explosives	An explosive substance is a solid or liquid substance (or mixture of substances) which is capable by chemical reaction of producing gas at such a temperature and pressure and at such a speed as to cause damage to the surroundings.
Hazardous	Hazardous substances/mixture/materials are those that have the capacity of producing human injury or illness by exposure through any route, by creating an adverse effect upon the environment, and/or those defined and listed by any applicable (i.e. Health and Safety, Environmental, and Transportation) regulation
Homogenous Material	The physical definition of homogeneity is: the quality of having all properties independent of the position. The compositional homogeneity of any material means: the chemical composition is the same for all substances forming or being an ingredient of the material (e.g. impurities) at any spot of measurement. The opposite: an inhomogeneous material is composed in a way that the amount of the chemical ingredients is dependent on the spot of measurement.
IARC	International Agency for Research on Cancer
Material	A material is a substance or mixture of substances that constitutes an object.
Mixture	A mixture is composed of two or more substances
Mutagenic	Any chemical that can produce a genetic mutation, i.e., an induction of DNA damage, or changes in chromosome structure or number, including: substances/mixtures classified as Category 1, 2 or 3 mutagens under the provisions of the EC CLP Regulation 1272/2008 (Classification, Packaging and Labeling of Substances and Mixtures).
Non-Dimensional Material	Non-dimensional materials are those that have no intrinsic shape without containing structure. Examples of these materials are fluids, gases, powders and semi-solids (pastes) like adhesives, greases, paints, bulk chemicals, and separately packaged chemicals in post-production service kits.
Ozone depleting	Ozone Depleting Substances (ODS) - are defined as chemicals that have been linked to the depletion of the stratospheric ozone layer.
Product	The entity that is supplied to Vestas Wind Systems A/S, which can be an assembly, part (component), sub-component, material, or substance / mixture. This could include the restricted substance itself (e.g. lead sulfide), a material containing the restricted substance (e.g. a friction material containing lead sulfide), or a component or assembly containing the

	restricted substance (e.g., a brake assembly with a lead-containing friction material).
Prohibited	Substances designated, as "Prohibited" shall not be supplied in any products, subject to the stated directions on content threshold and affected applications. A maximum concentration value of 0.1% by weight of per homogeneous material shall be tolerated for these substances or subject to specific threshold limits specified in the prohibited substance list document under section 5.
REACH	REACH is a regulation of the European Union, adopted to improve the protection of human health and the environment from the risks that can be posed by chemicals, while enhancing the competitiveness of the EU chemicals industry. (Registration, Evaluation, Authorization and Restriction of Chemicals; EU Regulation 1907/2006/EC)
REACH Candidate list	Substances fulfilling one or more of the criteria defined in Article 57 of the EU REACH Regulation can be identified as "substances of very high concern" (SVHC) and put on the "candidate List for authorization" which is also called "REACH SVHC list".
Reproductive toxic	Substances /mixtures or other agents which may affect male or female fertility, cause damage to the unborn or newborn child, or provoke miscarriage, including: <ul style="list-style-type: none"> Substances/mixtures classified as Category 1, 2 or 3 due to adverse effects on fertility, or their developmental toxicity under the provisions of the EC CLP Regulation 1272/2008 https://echa.europa.eu/information-on-chemicals/cl-inventory-database
Restricted	If a chemical product contains REACH SVHC substance above 0.1 %w/w and / or its hazard classification is matching the table 2 in section 5, then the chemical product considered as restricted. Dispensation is applicable.
SDS	SDS is a document that contains information on the potential hazards (health, fire, reactivity and environmental), storage, handling and emergency procedures all related to the hazards of the material and how to work safely with the chemical product.
Sensitizing	Substances which have been identified as confirmed or potential sensitizers by animal experimentation or human experience include but are not limited to chemicals which; <ul style="list-style-type: none"> Are classified as inhalation or contact sensitizers under the provisions of the EC CLP Regulation 1272/2008 (http://ec.europa.eu/enterprise/sectors/chemicals/documents/classification/index_en.htm) Are classified as such according to the World Health Organization "criteria for classification of skin and airway sensitizing substances in the work and general environments" (1996)
Substance	Substance means a chemical element and its compound e.g., lead or lead sulfide, Substances usually have CAS number.

Toxic	The adverse effects of a substance that result either from a single exposure or from multiple exposures in a short period of time (usually less than 24 hours)
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10. Reference legislation

1	US Toxic Substances Control Act (TSCA)-UN List of Identified Endocrine Disrupting Chemicals. https://www.unenvironment.org/explore-topics/chemicals-waste/what-we-do/emerging-issues/scientific-knowledge-endocrine-disrupting
2	EU RoHS 3 (Directive 2011/65/EU): EU RoHS 2 refers to Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE).
3	EU REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC.
4	REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006
5	STOCKHOLM CONVENTION ON PERSISTENT ORGANIC POLLUTANTS (POPs,), signed in 2001 and effective from May 2004. (its 9 th meeting held in Geneva from 29 April to 10 May 2019). http://www.pops.int/ ROTTERDAM CONVENTION, Signed in 1998 and effective from 2004. (its 9 th meeting held in Geneva from 29 April to 10 May 2019). http://www.pic.int/
6	The Montreal Protocol on Substances that Deplete the Ozone Layer, was signed in 1987 and entered into force in 1989. https://ozone.unep.org/treaties/montreal-protocol/montreal-protocol-substances-deplete-ozone-layer .

11. Version history

Version No.	Year	Description of Changes
07	2017	Divided of the previous blacklist into a procedure, a new Vestas Chemical and Material blacklist with prohibited materials and a creation of a restricted Material list. The Chinese Ozone depleting substances legislation has been added to the list of references.
06	2015	Version 06 was introduced with new format
03,04 & 05	2012	Version 03,04,05 was made in 2012 and it was valid from 1st April 2012 <ul style="list-style-type: none"> • Major update is • Accountability & Responsibility • Supplier's obligation

		<ul style="list-style-type: none">• Prohibited, Restricted table.
01 & 02	2008	First Document introduced and then updated to version 2 and it was valid from August-2008