

Title:

Bombardier Transportation Prohibited & Restricted Substances

Scope:

In order to ensure legal compliance, Bombardier Transportation and all its suppliers shall conform to the provisions of the Bombardier Transportation Standard on Prohibited & Restricted Substances. This Standard shall be implemented in all Bombardier Transportation Divisions and Business Units. The Standard classifies certain substances as either Prohibited (must not be used), or Restricted (shall be avoided).

Details on how to conform to this Standard and the required documentation of this are stated in the Bombardier Transportation Directive "Control of Hazardous Materials and Substances" (GRP-20.20.15-000013) and the relevant project contracts.

Purpose / Summary:

This Standard covers the following markets in detail: EU, Switzerland, and Canada. Other markets maybe partially covered, however in the case that the target market of a certain project is not listed above, then the project must review the applicable regulations of the target market and shall specify additions in the project requirements. Please note that the project may also specify additions in the project requirements due to customer requirements. It is therefore important to ensure that project requirements regarding use of substances are strictly followed.

When reviewing the substances listed as prohibited and restricted please pay particular attention to:

- Flame retardants
- Additives in plastics, rubber and foams
- Composition of adhesives, sealants, paint and powder coatings
- Surface treatment of metals (check specifically for cadmium or chromium VI)
- Composition of electrical components and solder
- If the electrical components are RoHS compliant

Note that for many applications exemptions may exist to the legislation. Where these have a known impact on Bombardier Transportation this is indicated with an asterisk (*) in the limits of control column. For further details contact the project DfE Engineer or refer to the legislation. Note that in all situations the use of substances on this list must be appropriately approved using the "Derogation to Supply an Article Containing a Restricted Substance" template (GRP-20.20.15-000016) as well as completely inventoried using the Bombardier Transportation Material Inventory Tool (3EST7-3177). This Standard is a referenced document to the Bombardier Transportation Directive "Control of Hazardous Materials and Substances" (GRP-20.20.15-000013). Full details for implementation of this Standard are in the Directive. Details of the abbreviations used are available at the end of this Standard. For suppliers who need further details, including how to interpret listed substances as well as how to apply for a derogation, please ask your Bombardier Transportation contact person.

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Bombardier Transportation Prohibited and Restricted Substances

No.	Substance	CAS	Applicable Region (All if not stated)	Limits of control and Limit value (0.1% w/w if not stated)	Bombardier Control	Typical Use	Risk	Reference
1	4,4'- Diaminodiphenylmethane (MDA)	83712-44-1		All applications	R	intermediate in the form of an isomer mixture with a varying content of tri- and polynuclear amines	C	EU - Reg 1907/2006 Candidate List
2	4-Nitrobiphenyl	92-93-3		All applications	P	In dyes for textile and leather. Stabilizer in rubber	C, E	EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.13
3	5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	81-15-2		All applications	R	Ingredient in fragrance compositions	T	EU - Reg 1907/2006 Candidate List
4	Aldrin	309-00-2		All applications	P	Wood treatment	T	EU - Reg 850/2004 FR - Code de l'environnement R521-11
5	Ammonium sulphides (see Substance Groups)	several		All applications	R	Textiles	A	EU-Reg 1907/2006 Annex XVII
6	Anthracene	120-12-7		All applications	R	Organic semiconductor, scintillator	T	EU - Reg 1907/2006 Candidate List
7	Antimony trioxide	1309-64-4		All applications	R	Flame retardant	C	-
8	Aromatic amines and their salts: (see Substance Groups)	Several		All applications	P	In dyes for textile and leather (Azocolourants). Stabilizer in rubber	C, E, H	EU -Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.13
9.1	Arsenic and its compounds	Several; As: 7440-38-2		Wood preservation Anti-fouling Water treatment Paints	P	Wood treatment, paints	C, E, N, T	EU - Reg 1907/2006 Annex XVII CA - CEPA Toxic CH - SR 814.81 Annex 2.4
9.2				Wood preservation (CCA type C) for: Buildings & construction works, bridges, noise barriers, power transmission poles, underground railway sleepers	R	Wood preservation for: Buildings & construction works, bridges, noise barriers, power transmission poles, underground railway sleepers		EU - Reg 1907/2006 Annex XVII
9.3				All applications	R	Alloying additive, refining agent in glass		
10	Asbestos	1332-21-4		All applications	P	Insulation, friction lining	C	EU - Reg 1907/2006 Annex XVII CA - CEPA Toxic CH - SR 814.81 Annex 1.6
11	Azocolourant (see Substance Groups)			Textiles Leather	P	Dyes		EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.13
12	Bis(tributyltin)oxide (TBTO)	56-35-9		All applications	R	Biocide, antifouling agent, agricultural pesticides, conservation of timber, textiles and leather	T	EU - Reg 1907/2006 Candidate List
13.1	Benzene	71-43-2	FR	Interior materials emitting more than 1µg per m3	P	Rubbers, plastics, lubricants, and adhesive		FR - Arrêté du 30 April 2009
13.2			CH	All applications*	P	Rubbers, plastics, lubricants, and adhesive		CH - SR 814.81 Annex 1.12
13.3				All applications	R	Rubbers, plastics, lubricants, and adhesive		
14.1	Benzo(a)pyrene (BaP)	50-32-8	CH	Wood treatment	P	Wood treatment		CH - SR 814.81 Annex 2.17
14.2				Wood treatment	R	Wood treatment		
15	Beryllium and its compounds	Several; Be: 7440-41-7		All applications	R	In electronics and contacts. Often present in copper alloys	A, C	EU - Reg 1907/2006 Annex XVII
16	Bromochloromethane (BCM)	74-97-5		All applications	P	Fire extinguishant, pesticides, fungicides, intermediate	O	EU - Reg EC/2307/2000 CH - SR 814.81 Annex 1.4

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17.1	Cadmium and its compounds	Several; Cd: 7440-43-9		Plastics Packaging Resins Paints (pigments or stabilizers)* 0.01% w/w	P	Plastics, resins, paints	C, E	EU - Reg 1907/2006 Annex XVII CA - CEPA Toxic CH - SR 814.81 Annex 2.8, SR 814.81 Annex 2.9, SR 814.81 Annex 2.16
17.2			EU CH	Surface coatings*	P	Surface treatment, EEE		EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 2.16
17.3				Surface coatings	R	Surface treatment, EEE		
17.4				Portable batteries* 0.002% w/w Zinc carbon 0.015% w/w	P	Batteries		EU - Dir 2006/66/EC CH - SR 814.81 Annex 2.15
17.5			FR CH	Non removable batteries 0.025% w/w 0.0005% w/w	P	Batteries		FR - Code de l'environnement R543-125, Arrêté du 1 juillet 2004 CH - SR 814.81 Annex 2.15
17.6			CH	Wood treatment	P	Wood treatment		CH - SR 814.81 Annex 2.17
17.7			CN	EIP 0.01% w/w	R	EIP		CN - China RoHS
17.8				All applications; EU EEE 0.01 % w/w	R	EEE		EU - Dir 2002/95/EC, Dir 2000/53/EC, CH - SR 814.81 Annex 2.16
18	CMR Cat 1 or 2 (not otherwise included in the instruction): (see Substance Groups)	Several		All applications	R	Several	C, M, R	EU - Reg 1907/2006 Annex XVII Appendix 1-6 CH - SR 814.81 Annex 1.10
19	CFC - chlorofluorocarbons	Several		All applications	P	Refrigerant, aerosols, solvents or foams	O	EU - Reg EC/2307/2000, CA - CEPA SOR/99-7, CEPA Toxic CH - SR 814.81 Annex 1.4 US - Clean Air Act Title VI
20	Chlordecone	143-50-0		All applications	P	Insecticide, flame retardent	T	EU - Reg 850/2004 CH - SR 814.81 Annex 1.1
21	Chromium VI compounds	Several; Ion: 18540-29-9		All applications; EU 0.002% w/w in cement CH 0.0002% w/w in cement	P	EEE, EIP, Anti-corrosion surface treatment; pigment and anti-corrosion additive in paint, cement, plastic; alloying element; wood preservative; leather tanning agent	A, C, E	BT - BTLT EU - Reg 1907/2006 Annex XVII, Dir 2000/53/EC, Dir 2002/95/EC CA - CEPA Toxic CH - SR 814.81 Annex 2.16 CN - China RoHS
22	Cobalt chloride	7646-79-9		All applications	R	In desiccant, e.g. "silica gel"	C, E, T	EU - Reg 1907/2006 Annex XVII
23	Cobalt dichloride	7646-76-9		All applications	R	Drying agents	C, E, T	EU - Reg 1907/2006 Candidate List
24.1	Creosote (see Substance Groups)	Several		All applications	P	Wood treatment	C	EU - Reg 1907/2006 Annex XVII
24.2			CH	Wood treatment in S1 or S2 zones	P	Wood treatment		CH - SR 814.81 Annex 2.4
24.3				Wood treatment in industrial installations	R	Wood treatment		EU - Reg 1907/2006 Annex XVII
25	Diarsenic pentaoxide	1303-28-2		All applications	R	In the dyeing industry, metallurgy (to harden copper, lead or gold in alloys), and for manufacturing certain types of glass	C	EU - Reg 1907/2006 Candidate List
26	Diarsenic trioxide	1327-53-3		All applications	R	Decolorizing agent for glass and enamels, refining and oxidizing agent for manufacturing special glass and lead crystal formulations, wood preservative	C	EU - Reg 1907/2006 Candidate List

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27	Dieldrine	60-57-1		All applications	P	Wood treatment	T	EU - Reg 850/2004 FR - Code de l'environnement R521-11 CH - SR 814.81 Annex 1.1
28	Di- μ -oxo-di-n-butylstanniohydroxyborane dibutyltin hydrogen borate C8H19BO3Sn (DBB)	75113-37-0		All applications	P	Specific uses can't be found	T	EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.14
29	Deca brominated diphenylether (Deca-BDE)	Several		All applications*	R	Flame retardant for plastic, textile and foam	C, E	EU - Dir 2002/95/EC CH - SR 814.81 Annex 1.9
30	Endrine	72-20-8		All applications	P	Wood treatment	T	EU - Reg 850/2004 FR - Code de l'environnement R521-11 CH - SR 814.81 Annex 1.1
31.1	Fluorinated greenhouse gases (see Substance Groups)	Several		All applications	P	Fire extinguishant, coolant, dielectric (gaseous electrical insulator), insulation gas in foams, tyres, windows	N	EU - Reg 842/2006/EC CH - SR 814.81 Annex 1.5 (SF6) INT - Kyoto Protocol
31.2				Hermetically sealed systems	R	Coolant, dielectric (gaseous electrical insulator), insulation gas in foams, tyres, windows		EU - Reg 842/2006/EC
32.1	Fluorinated organic compounds (see Substance Groups)	Several	CH	All applications	P	Solvents, foams, refrigerants, fire extinguishant	E	CH - SR 814.81 Annex 1.5
32.2				All applications	R	Solvents, foams, refrigerants, fire extinguishant		
33	Formaldehyde	50-00-0		All applications	R	In urea and melamine resins. In adhesive, paint, lacquer and textile	A, C	CA - CEPA Toxic, SE - KIFS 1998:8
34.1	Halogenated Benzenes	Several	CH	Condensers, transformers	P	Condensers, transformers	T	CH - SR 814.81 Annex 2.14
34.2				Condensers, transformers	R	Condensers, transformers	T	
35	Halogenated benzyltoluenes: (see Substance Groups)			All applications	P	PCB- substitute, dielectric fluid in condensers and transformers.	E	EU - Reg 1907/2006 Annex XVII
36.1	Halogenated biphenyls, terphenyls, naphthalenes and diarylalkanes (see Substance Groups)	Several	CH	All applications	P	Heat transfer agent, Solvent, Fungicide, Dyeing agent	T	CH - SR 814.81 Annex 1.1, SR 814.81 Annex 2.14
36.2				All applications	R	Heat transfer agent, solvent, fungicide, dyeing agent	T	
37	Halons - bromofluorochlorocarbons	Several		All applications	P	EEE, Fire extinguisher and friction lining	O	EU - Reg EC/2307/2000 CA - CEPA SOR/99-7, CEPA Toxic US - Clean Air Act Title VI CH - SR 814.81 Annex 1.4
38	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified: (see Substance Groups)	Several		All applications	R	Flame retardant	T	EU - Reg 1907/2006 Candidate List
39	Hexachlorobenzene (HCB)	118-74-1		All applications	P	Fungicide, fireworks, rubber additive, wood treatment	T	EU - Reg 850/2004 CH - SR 814.81 Annex 1.1
40	Hexachlorocyclohexane (HCH)	58-89-9		All applications	P	Wood treatment	T	EU - Reg 850/2004 FR - Code de l'environnement R521-11 CH - SR 814.81 Annex 1.1

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41	HBFC - hydrobromofluorocarbons	Several		All applications	P	Solvents, degreasing agents, fire extinguishing agents and refrigerants	O	EU - Reg EC/2307/2000 CA - CEPA Toxic CH - SR 814.81 Annex 1.4 US - Clean Air Act Title VI
42.1	HCFC - hydrochlorofluorocarbons	Several	EU CH	All applications	P	Aerosols, solvents, refrigerants, or foams, air conditioning systems	O	EU - Reg EC/2307/2000 CH - SR 814.81 Annex 1.4
42.2	HCFC 142b		US	All applications*	P	Aerosols, solvents, refrigerants, or foams, air conditioning systems		US - Clean Air Act Title VI
42.3	HCFC 22			All applications	R	Aerosols, solvents, refrigerants, or foams, air conditioning systems		CA - CEPA SOR/99-7, CEPA Toxic US - Clean Air Act Title VI
43	Isocyanates	Several		All applications; especially uncured form	R	In polyurethane, adhesive, paint and lacquer	A	National emission limit values
44.1	Lead and its compounds	Several; Pb: 7439-92-1		Packaging Paints (Lead carbonate and sulphates)*	P	Paints	C, E, N, R	EU - Reg 1907/2006 Annex XVII, Dir 2000/53/EC (2002/525/EC), CA - CEPA Toxic CH - SR 814.81 Annex 2.8, CH - SR 814.81 Annex 2.16
44.2			FR CH CH	Non removable batteries 0.4% w/w 0.1 % w/w	P	Batteries		FR - Code de l'environnement R543-125, Arrêté du 1 juillet 2004 CH - SR 814.81 Annex 2.15 CH - SR 814.81 Annex 2.17
44.3				Wood treatment	P	Wood treatment		EU - Dir 2002/95/EC, Dir 2000/53/EC CH - SR 814.81 Annex 2.8
44.4				All applications	R	EEE, EIP, plasticizer, alloys, ballast, plastic pigments		CN - China RoHS
45	Lead hydrogen arsenate	7784-40-9		All applications	R	herbicide and pesticide	C, R	EU - Reg 1907/2006 Candidate List
46	Man Made Mineral Fibres (MMMF)	Several		Only MMMFs classified as carcinogens	R	Insulation, plastics	C	EU - Reg 1907/2006 Annex XVII
47	Medium Chained Chlorinated Paraffins (MCCP)	Several; 85535-85-9		All applications	R	Flame retardant / plasticizer in rubber, sealants, and adhesives; plasticizer in plastics and paints; metal working fluid	E, C	CA - CEPA PSL 1
48.1	Mercury and its compounds	Several; Hg: 7439-97-6		Wood preservation Packaging Textile impregnation Water treatment Anti-fouling	P	Wood preservation, railway sleepers, textiles, purification treatment, paint additive	E, N	EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 2.16, SR 814.81 Annex 2.17
48.2				Batteries and accumulators 0.0005% w/w (Button cells batteries 2% w/w) Alkaline-manganese 0.0005% w/w	P	Batteries		EU - Reg 1907/2006 Annex XVII EU - Dir 2006/66/EC CH - SR 814.81 Annex 2.15
48.3			CH	Non removable batteries 0.0005% w/w	P	Batteries		
48.4			CH	All applications*	P	EEE, vehicles		CH - SR 814.81 Annex 1.7
48.5				All applications	R	EEE, EIP, vehicles		EU - Dir 2002/95/EC, Dir 2000/53/EC CA - CEPA Toxic CN - China RoHS
49	Mirex	2385-85-5		All applications	P	Insecticide, Flame retardant in plastics, rubber, paper, electronics	T	EU - Reg 850/2004 CH - SR 814.81 Annex 1.1
50	Nickel	7440-02-0		Surface coatings; especially when risk of contact with skin	R	Surface treatment, alloy, batteries	A	EU - Reg 1907/2006 Annex XVII CA - CEPA Toxic

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51.1	Nonylphenol	25154-52-3 84852-15-3		Industrial cleaning systems* Textile and leather processing* Metal working*	P	Cleaning systems, textile and leather processing, metal working, pesticides, biocides, oil additives, stabilizer and antioxidant for plastics and rubber	E	EU - Reg 1907/2006 Annex XVII CA - CEPA Toxic CH - SR 814.81 Annex 1.8
51.2				All applications	R	Paints		
52.1	Nonylphenol ethoxylate	9016-45-9		Industrial cleaning systems* Textile and leather processing* Metal working*	P	Cleaning systems, textile and leather processing, metal working, pesticides, biocides	E	EU - Reg 1907/2006 Annex XVII CA - CEPA Toxic CH - SR 814.81 Annex 1.8
52.2				All applications	R	Paints		
53	Octa brominated diphenylether (Octa-BDE)	Several		All applications	P	EEE, EIP, Flame retardant for plastic, textile and foam	C, E	EU - Reg 1907/2006 Annex XVII, Dir 2002/95/EC, Dir 2002/96/EC CH - SR 814.81 Annex 1.9 CN - China RoHS
54.1	Octylphenol	Several; e.g. 27193-28-8	CH	Industrial cleaning systems* Textile and leather processing* Metal working*	P	Cleaning systems, textile and leather processing, metal working, pesticides, biocides	E	CH - SR 814.81 Annex 1.8
54.2				All applications	R	Cleaning systems, textile and leather processing metal working, pesticides, biocides		
55.1	Octylphenol ethoxylate	9002-93-1	CH	Industrial cleaning systems* Textile and leather processing* Metal working*	P	Cleaning systems, textile and leather processing, metal working, pesticides, biocides	E	CH - SR 814.81 Annex 1.8
55.2				All applications	R	Detergents and industrial cleaners, dispersants, stabilizers, sanitizers, defoaming agents, agrochemical emulsifiers, metal working, textile processing, paper de-inking, drilling products, intermediate anionic surfactants synthesis, dust control, adhesive, plastic industry, lube oil, cosmetic and pharmaceuticals		
56.1	PBB - polybrominated biphenyls	Several; e.g. 5936-65-1		Textile Articles	P	Flame retardant for textiles	C, E, N	EU - Reg 1907/2006 Annex XVII, Reg 850/2004
56.2				EEE*	R	EEE, EIP, Flame retardant for plastic and foams, often found in circuit boards		EU - Dir 2002/95/EC CH - SR 814.81 Annex 1.9 CN - China RoHS
56.3				All applications	R	Flame retardant for plastic and foams, often found in circuit boards		CA - CEPA SOR/96-237, CEPA Toxic
57	PCB - polychlorinated biphenyls	Several; e.g. 1336-36-3		All applications	P	In transformers, condensers, capacitors, insulators, resistors, wood treatment, flame retardant or plasticizer for plastic	C, E	EU - Reg 850/2004, Dir 2002/96/EC CA - CEPA SOR/96-237, CEPA Toxic CH - SR 814.81 Annex 2.14, SR 814.81 Annex 2.17
58	PCP - pentachlorophenol and its salts and esters	87-86-5 131-52-2		All applications	P	Wood treatment, tanning of leather, impregnation of fibre and textiles	C, T	EU - Reg 1907/2006 Annex XVII, CA - CEPA SOR/2000-108 CH - SR 814.81 Annex 1.1, SR 814.81 Annex 2.17
59	PCT - polychlorinated terphenyls	Several; e.g. 61788-33-8		All applications 0.005% w/w	P	Electronics (transformers, capacitors, insulators and resistors), heat transmitting fluids, hydraulics, flame retardant for plastic, plasticizer in plastics	C, E	EU - Reg 1907/2006 Annex XVII, Dir 2002/96/EC CA - CEPA SOR/96-237, CEPA Toxic

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60	Penta brominated diphenylethers (Penta-BDE)	Several		All applications	P	EEE, EIP, Flame retardant	C, E	EU - Reg 1907/2006 Annex XVII, Dir 2002/95/EC CH - SR 814.81 Annex 1.9 CN - China RoHS
61	Perchlorethylene	127-18-4		All applications	R	Solvent, metal degreasing, jointing compound, lubricant	C, T	CA - CEPA Toxic
62	Phthalates, specified DBP DEHP	84-74-2 117-81-7	FR	Interior materials emitting more than 1µg per m3	P	Plasticizers and hardeners In PVC, adhesive and paint	A, E, R	FR - Arrêté du 30 April 2009
63	Phthalates, certain (see Substance Groups)			All applications; Particularly interior plastic details	R	Plasticizers and hardeners In PVC, adhesive and paint	A, E, R	EU - Reg 1907/2006 Annex XVII, Dec 1999/815/EC (2004/781/EC), CA - CEPA Toxic
64.1	Polycyclic Aromatic Hydrocarbons (PAH) (see Substance Groups)	Several	CH	Tyres	P	Base oils and lubricants	E, C, R	CH - SR 814.81 Annex 2.9
64.2				All applications	R	Base oils and lubricants	E, C, R	EU - Reg 1907/2006 Annex XVII, CA - CEPA Toxic
65	Polyvinylchloride (PVC)	9002-86-2		All applications	R	Plastic details	EA, F	-
66.1	Potassium acetate	127-08-2	CH	De-icing	P	De-icing agents		CH - SR 814.81 Annex 2.7
66.2				De-icing	R	De-icing agents		
67.1	Potassium formiate		CH	De-icing	P	De-icing agents		CH - SR 814.81 Annex 2.7
67.2				De-icing	R	De-icing agents		
68	Radioactive substances	several		All applications	R	Fire alarm systems	C	
69.1	Sodium acetate		CH	De-icing	P	De-icing agents		CH - SR 814.81 Annex 2.7
69.2				De-icing	R	De-icing agents		
70	Sodium dichromate	7789-12-0 10588-01-9		All applications	R	Oxidizing agent	C, M, R	EU - Reg 1907/2006 Candidate List
71.1	Sodium formiate		CH	De-icing	P	De-icing agents		CH - SR 814.81 Annex 2.7
71.2				De-icing	R	De-icing agents		
72	Short Chained Chlorinated Paraffins (SCCP)	85535-84-8		All applications	P	Flame retardant, paints and varnishes, sealants, plastics and rubbers, textiles, leather processing products, metal working products	E, C	EU - Dir Reg 1907/2006 Annex XVII, Reg 1907/2006 Candidate List CA - CEPA PSL 1 CH - SR 814.81 Annex 1.4
73	Talc (Talcum)	14807-96-6		All applications; powder form	R	On rubberised products, additive in plastics	C	-
74.1	Tetrachlorophenol (TeCP)	58-90-2	CH	All applications	P	Wood treatment, fungicide	T	CH - SR 814.81 Annex 1.1
74.2				All applications	R	Wood treatment, fungicide		
75	Thiram (TMTD)	137-26-8		All applications	R	In paint, vulcanizing agent for rubber, lube-oil additive	A, E	EU - Dir 91/414/EEC (2003/81/EC), INT - Rotterdam PIC substance
76.1	Tin-organic (Organostannic) compounds	Several; Sn: 7440-31-5		Biocides in paint	P	Biocide, antifouling	E, T	EU - Reg 1907/2006 Annex XVII, CH - SR 814.81 Annex 2.4
76.2				All applications	R	Stabiliser for plastics		EU - Reg 1907/2006 Annex XVII, CA - CEPA PSL 1
77	Toluene	108-88-3		Adhesive Paint	R	Solvent carrier in paints, thinners, or adhesives	T	EU - Reg 1907/2006 Annex XVII, CA - CEPA PSL 1 CH - SR 814.81 Annex 1.12
78	Trichlorobenzene (TCB)	120-82-1		All applications	P	Solvent, dielectric fluid, synthetic transformer oils, lubricants, dye carrier and wood preservative	T	EU - Reg 1907/2006 Annex XVII, CA - CEPA PSL 1 CH - SR 814.81 Annex 1.1
79	Trichloroethylene (TCE)	79-01-6	FR	Interior materials emitting more than 1µg per m3	P	Degreaser, solvent and adhesive	C	FR - Arrêté du 30 April 2009

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80	Triethyl arsenate			All applications	R	The fabrication of integrated circuits	C	EU - Reg 1907/2006 Candidate List
81	Triphenyl phosphate (TPP)	115-86-6		All applications	R	Flame retardant, plasticizer and antioxidant		-
82.1	Tris (1-aziridinyl) phosphine oxide	5455-55-1		Textile articles, intended to come into contact with the skin	P	Flame retardant for plastic, rubber, foam, textile, coating, paint and lacquer	C	EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.9
82.2				All applications	R	Flame retardant for plastic, rubber, foam, textile, coating, paint and lacquer		
83.1	Tris (2,3-dibromopropyl) phosphate	126-72-7		Textile articles, intended to come into contact with the skin	P	Flame retardant for plastic, rubber, foam, textile, coating, paint and lacquer	C, E	EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.9
83.2				All applications	R	Flame retardant for plastic, rubber, foam, textile, coating, paint and lacquer		
84	Urea	57-13-6	CH	De-icing	P	De-icing agents		CH - SR 814.81 Annex 2.7
85.1	Volatile Organic Compounds (VOC) (see Substance Groups)	Several		All applications	R	Thinners / constituents in paints, varnishes, solvents	C, E	EU - Dir 1999/13/EC (2004/04/EC) CA - CEPA Toxic, CEPA VOC Guidelines, CEPA Toxic
85.2	Chlorinated VOC	Several		All applications	P	Thinners / constituents in paints, varnishes, solvents, surface or fabric cleaning agents	C	BT - BTLT EU - Reg 1907/2006 Annex XVII CH - SR 814.81 Annex 1.3
86	Wood	None		Unsustainably forested, wood to be certified	R	In interior design, floors, or structural support	S	-

Note that for many applications exemptions may exist to the legislation, where these have a known impact on Bombardier Transportation this is indicated with an asterisk (*) in the limits of control column. For further details contact the project DfE Engineer or refer to the legislation. The use of restricted substances or materials above the given limit values must be approved using the "Derogation to Supply an Article Containing a Restricted Substance" template (GRP-20.20.15-000016). Note that in all situations the use of substances or materials on this list must be completely inventoried using the Bombardier Transportation Material Inventory Tool (3EST7-3177).

Bombardier Transportation Prohibited and Restricted Substance - Groups

No.	Substance Group	Material	CAS No.
5	Ammonium sulphides	Ammonium sulphide	12135-76-1
		Ammonium hydrogen sulphide	12124-99-1
		Ammonium polysulphide	9080-17-5
8	Aromatic amines and their salts:	2-Naphthylamine	91-59-8
		Benzidine	92-87-5
		4-aminobiphenyl xenylamine	92-67-1
		4-chloro-o-toluidine	95-69-2
		o-aminoazotoluene	97-56-3
		5-nitro-o-toluidine	99-55-8
		4-chloroaniline	106-47-8
		4-methoxy-m-phenylenediamine	615-05-4
		4,4'-methylenedianiline	101-77-9
		3,3'-dichlorobenzidine	91-94-1
		3,3'-dimethoxybenzidine	119-90-4
		3,3'-dimethylbenzidine	119-93-7
		4,4'-methylenedi-o-toluidine	120-71-8
		6-methoxy-m-toluidine	838-88-0
		4,4'-methylene-bis-(2-chloroaniline)	101-14-4
		4,4'-oxydianiline	101-80-4
		4,4'-thiodianiline	139-65-1
		o-toluidine	95-53-4
4-methyl-m-phenylenediamine	95-80-7		
2,4,5-trimethylaniline	137-17-7		
o-anisidine	90-04-0		
4-amino azobenzene	60-09-3		
10	Asbestos	Crocidolite	12001-28-4
		Amosite	12172-73-5
		Anthophyllite	77536-67-5
		Actinolite	77536-66-4
		Tremolite	77536-68-6
		Chrysotile (2)	12001-29-5 132207-32-0
11	Azocolourant	Defined as a mixture of: 1) disodium (6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)(1-(5-chloro-2-oxidophenylazo)-2-naphtholato)chromate(1-) 2) trisodium bis(6-(4-anisidino)-3-sulfonato-2-(3,5-dinitro-2-oxidophenylazo)-1-naphtholato)chromate(1-)	
18	CMR Cat 1 or 2	CMR category 1 and 2 are defined by EU REACH (Regulation EC 1907/2006) Annex XVII Appendix 1-6	

Bombardier Transportation Prohibited and Restricted Substance - Groups

No.	Substance Group	Material	CAS No.
24	Creosote	Creosote; wash oil	8001-58-9
		Creosote oil; wash oil	61789-28-4
		Distillates (coal tar), naphthalene oils; naphthalene oil	84650-04-4
		Creosote oil, acenaphthene fraction; wash oil	90640-84-9
		Distillates (coal tar), upper; heavy anthracene oil	65996-91-0
		Anthracene oil	90640-80-5
		Tar acids, coal, crude; crude phenols	65996-85-2
		Creosote, wood	8021-39-4
		Low temperature tar oil, alkaline; extract residues (coal), low temperature coal tar alkaline	122384-78-5
31	Fluorinated greenhouse gases:	Hydrofluorocarbons (HFC)	Several
		Perfluorocarbons (PFC)	Several
		Sulphur hexafluoride (SF6)	2551-62-4
32	Fluorinated organic compounds	Note this is a non-exhaustive list of Fluorinated organic compounds. Fluorinated organic compounds are those where the vapour pressure is at least 0.1 mbar at 20°C or the boiling point of which does not exceed 240°C at 1013.25 mbar, and have a mean lifetime in air of at least 2 years. The Swiss FOEN publish a list of the commonest compounds	
35	Halogenated benzyltoluenes:	Monomethyl-dibromodiphenylmethane	99688-47-8
		(Ugilec 121 or 21) Monomethyl-dichlorodiphenylmethane	-
		(Ugilec 141) Monomethyl-tetrachlorodiphenylmethane	76253-60-6
36	Halogenated biphenyls, terphenyls, naphthalenes and diarylalkanes	halogenated biphenyls of the C ₁₂ H _n X _{10-n} type; X = halogen, 0 ≤ n ≤ 9	Several
		halogenated terphenyls of the C ₁₈ H _n X _{14-n} type; X = halogen, 0 ≤ n ≤ 13	Several
		halogenated naphthalenes of the C ₁₀ H _n X _{8-n} type; X = halogen, 0 ≤ n ≤ 7	Several
		monomethyltetrachlorodiphenylmethane	76253-60-6
		monomethyldichlorodiphenylmethane	
		monomethyldibromodiphenylmethane	99688-47-8
38	Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified:	Alpha-hexabromocyclododecane	(134237-50-6)
		Beta-hexabromocyclododecane	(134237-51-7)
		Gamma-hexabromocyclododecane	(134237-52-8)
63	Phthalates:	Butyl benzyl phthalate (BBP)	85-68-7
		Dibutyl phthalate (DBP)	84-74-2
		Di-(2-ethylhexyl) phthalate (DEHP)	117-81-7
		Diisononyl phthalate (DINP)	28533-12-0
		Diisodecyl phthalate (DIDP)	26761-40-0
		Di-n-oktyl phthalate (DNOP)	117-84-0
		Diisobutyl phthalate	84-69-5
		Dimethyl phthalate	131-11-3

Bombardier Transportation Prohibited and Restricted Substance - Groups

No.	Substance Group	Material	CAS No.
64	Polycyclic Aromatic Hydrocarbons (PAH)	Note this is a non-exhaustive list of PAHs. PAHs are hydrocarbon compounds with multiple benzene rings.	
		Benzo(a)pyrene (BaP)	50-32-8
		Benzo(e)pyrene (BeP)	192-97-2
		Benzo(a)anthracene (BaA)	56-55-3
		Chrysen (CHR)	218-01-9
		Benzo(b)fluoranthene (BbFA)	205-99-2
		Benzo(j)fluoranthene (BjFA)	205-82-3
		Benzo(k)fluoranthene (BkFA)	207-08-9
		Dibenzo(a, h)anthracene (DBAhA)	53-70-3
85.1	Volatile Organic Compounds (VOC):	Note this is a non-exhaustive list of VOCs. VOCs are defined by a variety of different of differing methods. A basic definition is that VOCs are compounds that have a high vapor pressure and low water solubility	
85.2	Chlorinated VOC:	Benzene	71-43-2
		Chloroform	67-66-3
		Carbon tetrachloride-tetrachloromethane	56-23-5
		Trichloroethylene (TCE)	79-01-6
		1,1,2 Trichloroethane	79-00-5
		1,1,2,2 Tetrachloroethane	79-34-5
		1,1,1,2 Tetrachloroethane	630-20-6
		Pentachloroethane	76-01-7
		1,1 Dichloroethylene	75-35-4
		1,1,1 Trichloroethane, methyl chloroform	71-55-6

Bombardier Transportation Prohibited and Restricted Substances - Legend

Column	Information
No	Each substance is given its own reference number. Where a substance has separate controls due to application, these are given sub-numbers to allow differentiation.
Substance	The substance or substance group (groups are detailed in the Substance Groups table).
CAS	The Chemical Abstracts Services (CAS) number for the substance allows for precise identification of a substance. For further information on CAS see: http://www.cas.org
Applicable Region	If a particular control is only valid in a certain region then it is noted here. Otherwise the control is valid globally.
Limits of Control and Limit values (0.1% w/w if not stated)	<p>The level for control of a substance/application is specified in this column. If there is no level specified then the control is 0.1 % w/w. W/w refers to the mass of the substance in the homogenous material. No matter what given limit value, substances on this list must be completely inventoried using the Bombardier Transportation Material Inventory Tool (3EST7-3177).</p> <ul style="list-style-type: none"> • EEE means Electronic and Electrical Equipment • EIP means Electronic Information Products
Bombardier Control	<p>Each substance included in the list of Bombardier Transportation Prohibited and Restricted Substances needs to be controlled. The level of this control is specified in this column for the appropriate application.</p> <ul style="list-style-type: none"> • "P" stands for Prohibited, and means that the substance must not be used in that application, • "R" stands for Restricted and means that it shall be avoided in that application.
Typical use	The typical use of the named substance is detailed here. The examples are only to be considered indicative of where the substance can potentially be used, and are not exhaustive.
Risk	<p>The risk associated with the substance is explained as follows:</p> <ul style="list-style-type: none"> • A – Allergy • B – Bio-accumulative • C – Carcinogenic • E – Environmentally Hazardous • EA – Environmentally Hazardous dependant on additives • F – In case of fire, extensive smoke generation and toxic combustion products • H – Harmful • M – Mutagenic • N – Neurotoxic • O – Ozone Depletion • P – Persistent • R – Reproductive Hazards • S – Scarce in Nature • T – Toxic
Reference	<p>The numbers of the relevant legislation for the substance/application are detailed in the reference column. The numbers are the legal reference for the legislation. Country codes are placed before the first legislation from each country. In addition to the usual codes the following may require additional explanation:</p> <ul style="list-style-type: none"> • CEPA Toxic – Substance is determined to be toxic according to section 64 of the Canadian Environmental Protection Act. • CEPA PSL 1 – Substance is on the Canadian Environmental Protection Act Priority Substance List. • National emission limit values – This will indicate that the substance is legislated at a regional level and that there are known to be too many acts of legislation to list. • China RoHS - China's Measures for the Administration of the Control of Pollution by Electronic Information Products.

4 Reference documents

Doc ID-number	Title
- 000013	Control of Hazardous Materials and Substances (Directive)
- 000016	Derogation to supply an article containing a restricted substance(s) (Template)
- 3EST 7-3177	Bombardier Transportation Material Inventory Tool (Template)

5 Approval Information

Prepared:	Sara Paulsson Manager CoC DfE	s.o.f	2009-10-02
	Author	Signature	Date (yyyy-mm-dd)
Released :	Michael Schemmer Senior Director HSE	s.o.f	2009-10-23
	process owner	Signature	Date (yyyy-mm-dd)

6 Revision Log

Revision	Date of Release	Description of changes
0	2002-09-16	First release
1	2005-06-01	Second release. Changed format and reviewed substances
2	2009-10-23	Third release. Format overhaul, updated substances and added Swiss legislation.