

Revision Record

Rev	Description of Change	Date	By
A	Initial Issue	01/31/2007	Lee Wilmot
B	Updated IPC 175x reference; added REACH SVHCs and updated EU RoHS exemptions	02/28/2011	Lee Wilmot
C	Updated EU RoHS 2 reference and REACH SVHCs listed/proposed substances through December 2012	01/31/2013	Lee Wilmot

1.0 PURPOSE

To define the requirements for the elimination of hazardous substances from TTM products, and for supplier reporting on the material content of raw materials provided to TTM.

2.0 SCOPE

This procedure applies to all suppliers of parts, materials, components and/or products supplied to TTM, whether finished or semi-finished, unless specifically exempted by TTM writing.

3.0 REQUIREMENT

All materials/ parts supplied to TTM shall be free from hazardous and controlled substances as listed in Table 1.

3.1 Suppliers of materials/ parts to TTM shall provide a statement in a manner prescribed by TTM regarding whether supplied materials/ parts are in compliance with the restrictions noted in Table 1. Note that it is the responsibility of the direct supplier TTM to verify that none of these substances are in excess of the threshold limits listed per homogeneous material (allowing for exemptions shown). The direct supplier is responsible for declaring the threshold limit of the constituents of any materials/ parts provided regardless of where the intentional additions or trace amounts may be introduced into the supply chain, through and including the raw material supplier.

3.2 Unless specifically exempted by TTM in writing, any materials/ parts shipped to TTM shall be free from hazardous and controlled substances as listed in Table 1.

3.3 Suppliers of materials/ parts shall not change any material/ part formulation to bring a material/part into compliance with the restrictions of Table 1 without express written approval from TTM. If such a change is approved in writing by TTM, the supplier must issue a new part number for the re-formulated material/ part and provide an updated supplier Material Declaration.

4.0 PROCEDURE

4.1 Suppliers of materials/ parts to TTM shall complete a supplier Material Declaration or a Certificate of Analysis, and a RoHS Certificate of Compliance unless specifically exempted in writing by TTM. Such certifications can be in the IPC-1752A v2.0 format, or declared on BOMcheck.net. Supplier certifications must be at a content level that is required for TTM to meet the documentation requirements of Directive 2011/65/EU (RoHS 2), REACH as well as TTM customers' expectations

4.2 Suppliers of materials/ parts shall update material declarations, certificates of analysis and RoHS certifications if any information previously reported is changed or new information becomes available to make the declaration more accurate.

5.0 RESPONSIBILITY

5.1 Division EC

5.2 Division Purchasing Staff

CROSS REFERENCE:

Directive 2011/65/EU	RoHS Recast
Directive 2002/95/EC Substances)	RoHS (Restrictions on the use of Certain Hazardous
Directive 2002/96/EC	WEEE (Waste Electrical and Electronic Equipment)
Directive 2000/53/EC	ELV (End of Life Vehicle)
US EPA 40 CFR 82.116	Protection of Stratospheric Ozone
Regulation 2037/2000/EC	Substances that Deplete the Ozone Layer
Directive 1999/77/EC	Restrictions for Dangerous Substances and Preparations
Directive 94/62/EC	Packaging and Packaging Waste
Directive 76/769/EEC	Restrictions for Dangerous Substances and Preparations
Directive 91/338/EEC	Amendment to Directive 76/769/EEC
Directive 85/467/EEC	Amendment to Directive 76/769/EEC
Directive 98/101/EC	Amendment to Directive 76/769/EEC
Directive 2002/61/EC	Amendment to Directive 76/769/EEC
Directive 2003/11/EC	Amendment to Directive 76/769/EEC
Directive 2002/45/EC	Amendment to Directive 76/769/EEC
Directive 2003/53/EC	Amendment to Directive 76/769/EEC
Regulation 1907/2006/EC	Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)

ASSOCIATED DOCUMENTS:

IPC 1751A	Generic Requirements for Declaration Process Management
IPC 1752A	Materials Declaration Management

TABLE 1

Materials/ parts supplied to TTM cannot exceed the specified threshold limits except where exemptions noted are applicable. All threshold limit values are shown in PPM (part per million) by weight per homogeneous material, except REACH substances that are based on total article weight. The formula for ppm calculation is $1,000,000 \times \text{mass substance} / \text{mass homogeneous material}$.

Substances (alphabetical order)	Threshold Trace Occurrence	Reference
Asbestos, asbestos compounds	-	Directive 1999/77/EC
Chlorofluorocarbons and halons (Class I and II Ozone depleting Chemicals)	- Cannot be manufactured with	Regulation 2037/2000 US EPA 40 CFR 82.116
Halogenated dioxins and furans	-	Germany
Mercury and mercury compounds	1000	Directive 2011/65/EU Directive 2000/53/EC
Polybrominated biphenyls (PBBs) and derivatives including biphenyl ethers (PBDEs)	1000	Directive 2011/65/EU Directive 2003/11/EC
Polychlorobiphenyls and directives (PCBs)	-	Directive 85/467/EEC
Polychloroterphenyls and directives (PCTs)	-	Directive 85/467/EEC
Ethylene Glycol Monomethyl Ether and its acetate	5	California Prop 65
Ethylene Glycol Monoethyl Ether and its acetate	5	California Prop 65
Cadmium and cadmium compounds (plastic, rubber, ink, pigment, paint)	5	Asian Requirements
Cadmium and cadmium compounds (all other applications)	100	Directive 2011/65/EU Directive 2000/53/EC
Chromium VI (except packaging below)	1000 2 in cements	Directive 2011/65/EU Directive 2003/53/EC
Lead and lead compounds (except as in cable and packaging below)	1000	Directive 2011/65/EU Directive 2000/53/EC
Lead and Lead compounds in plastics, rubbers, inks, paints	100	Asian requirements California Prop 65 for cables
Azo Dyes	30	Directive 2002/61/EC
Lead, Cadmium, Chrome VI, and Mercury in Packaging Materials	100 combined	Directive 94/62/EEC
Nonylphenol and nonylphenol ethoxylate	-	Directive 2003/53/EC
Tributyl tin (TBT) and Triphenyl tin (TPT) compounds	-	Asian Requirements
Short Chain Chlorinated Paraffins (C10-13, Cl>50%)	-	Directive 2002/45/EC
Anthracene	1000 (article)	REACH Reg. 1907/2006
4,4'- Diaminodiphenylmethane	1000 (article)	REACH Reg. 1907/2006
Dibutyl phthalate	1000 (article)	REACH Reg. 1907/2006
Cobalt dichloride	1000 (article)	REACH Reg. 1907/2006
Diarsenic pentaoxide	1000 (article)	REACH Reg. 1907/2006
Diarsenic trioxide	1000 (article)	REACH Reg. 1907/2006
Sodium dichromate, dihydrate	1000 (article)	REACH Reg. 1907/2006
5-tert-butyl-2,4,6-trinitro-m-xylene (musk xylene)	1000 (article)	REACH Reg. 1907/2006
Bis (2-ethyl(hexyl)phthalate) (DEHP)	1000 (article)	REACH Reg. 1907/2006
Hexabromocyclododecane (HBCDD)	1000 (article)	REACH Reg. 1907/2006
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	1000 (article)	REACH Reg. 1907/2006
Bis(tributyltin)oxide	1000 (article)	REACH Reg. 1907/2006

Lead hydrogen arsenate	1000 (article)	REACH Reg. 1907/2006
Triethyl arsenate	1000 (article)	REACH Reg. 1907/2006
Benzyl butyl phthalate	1000 (article)	REACH Reg. 1907/2006
2,4-Dinitrotoluene	1000 (article)	REACH Reg. 1907/2006
Anthracene oil	1000 (article)	REACH Reg. 1907/2006
Anthracene oil, anthracene paste, distn. lights	1000 (article)	REACH Reg. 1907/2006
Anthracene oil, anthracene paste, anthracene fraction	1000 (article)	REACH Reg. 1907/2006
Anthracene oil, anthracene-low	1000 (article)	REACH Reg. 1907/2006
Anthracene oil, anthracene paste	1000 (article)	REACH Reg. 1907/2006
Diisobutyl phthalate	1000 (article)	REACH Reg. 1907/2006
Aluminosilicate Refractory Ceramic Fibres as defined by ECHA in press release ECHA/PR/09/15	1000 (article)	REACH Reg. 1907/2006
Zirconia Aluminosilicate, Refractory Ceramic Fibres as defined by ECHA in press release ECHA/PR/09/15	1000 (article)	REACH Reg. 1907/2006
Lead chromate	1000 (article)	REACH Reg. 1907/2006
Lead chromate molybdate sulphate red (C.I. Pigment Red)	1000 (article)	REACH Reg. 1907/2006
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1000 (article)	REACH Reg. 1907/2006
tris(2-chloroethyl)phosphate	1000 (article)	REACH Reg. 1907/2006
Pitch, coal tar, high temp.	1000 (article)	REACH Reg. 1907/2006
Acrylamide	1000 (article)	REACH Reg. 1907/2006
Trichloroethylene	1000 (article)	REACH Reg. 1907/2006
Boric acid	1000 (article)	REACH Reg. 1907/2006
Disodium tetraborate, anhydrous	1000 (article)	REACH Reg. 1907/2006
Tetraboron disodium heptaoxide, hydrate	1000 (article)	REACH Reg. 1907/2006
Sodium chromate	1000 (article)	REACH Reg. 1907/2006
Potassium chromate	1000 (article)	REACH Reg. 1907/2006
Ammonium dichromate	1000 (article)	REACH Reg. 1907/2006
Potassium dichromate	1000 (article)	REACH Reg. 1907/2006
Cobalt (II) sulphate	1000 (article)	REACH Reg. 1907/2006
Cobalt (II) dinitrate	1000 (article)	REACH Reg. 1907/2006
Cobalt (II) carbonate	1000 (article)	REACH Reg. 1907/2006
Cobalt (II) diacetate	1000 (article)	REACH Reg. 1907/2006
2 – Methoxyethanol	1000 (article)	REACH Reg. 1907/2006
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Chromium trioxide	1000 (article)	REACH Reg. 1907/2006
Acids generated from chromium trioxide and their oligimers: Chromic acid Dichromic acid Oligimers of chromic acid and dichromic acid	1000 (article)	REACH Reg. 1907/2006
2-ethylethoxy acetate	1000 (article)	REACH Reg. 1907/2006
Strontium chromate	1000 (article)	REACH Reg. 1907/2006
1,2-Benzenedicarboxylic acid, di-C7-11 branched and linear alkyl esters	1000 (article)	REACH Reg. 1907/2006
Hydrazine	1000 (article)	REACH Reg. 1907/2006
1-methyl-2-pyrrolidone	1000 (article)	REACH Reg. 1907/2006
1,2,3-trichloropropane	1000 (article)	REACH Reg. 1907/2006
1,2-Benzenedicarboxylic acid, di-C6-8 alkyl esters, C-7 rich	1000 (article)	REACH Reg. 1907/2006

Dichromium tris(chromate)	1000 (article)	REACH Reg. 1907/2006
Potassium hydroxyoctaoxodizincatedi-chromate	1000 (article)	REACH Reg. 1907/2006
Pentazinc chromate octahydroxide	1000 (article)	REACH Reg. 1907/2006
Formaldehyde, oligomeric reaction products with aniline (technical MDA)	1000 (article)	REACH Reg. 1907/2006
Bis(2-methoxyethyl) phthalate	1000 (article)	REACH Reg. 1907/2006
2-Methoxyaniline; o-Anisidine	1000 (article)	REACH Reg. 1907/2006
4-(1,1,3,3-tetramethylbutyl)phenol, (4-tert-Octylphenol)	1000 (article)	REACH Reg. 1907/2006
1,2-Dichloroethane	1000 (article)	REACH Reg. 1907/2006
Bis(2-methoxyethyl) ether	1000 (article)	REACH Reg. 1907/2006
Arsenic acid	1000 (article)	REACH Reg. 1907/2006
Calcium arsenate	1000 (article)	REACH Reg. 1907/2006
Tri-lead diarsenate	1000 (article)	REACH Reg. 1907/2006
N,N-dimethylacetamide (DMAC)	1000 (article)	REACH Reg. 1907/2006
2,2'-dichloro-4,4'-methylenedianiline (MOCA)	1000 (article)	REACH Reg. 1907/2006
Phenolphthalein	1000 (article)	REACH Reg. 1907/2006
Lead azide Lead diazide	1000 (article)	REACH Reg. 1907/2006
Lead styphnate	1000 (article)	REACH Reg. 1907/2006
Lead dipicrate	1000 (article)	REACH Reg. 1907/2006
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1000 (article)	REACH Reg. 1907/2006
Pentacosaflluorotridecanoic acid	1000 (article)	REACH Reg. 1907/2006
Tricosaflluorododecanoic acid	1000 (article)	REACH Reg. 1907/2006
Henicosaflluoroundecanoic acid	1000 (article)	REACH Reg. 1907/2006
Heptacosaflluorotetradecanoic acid	1000 (article)	REACH Reg. 1907/2006
Diazene-1,2-dicarboxamide (C,C'-azodi (formamide))	1000 (article)	REACH Reg. 1907/2006
1,2-bis(2-methoxyethoxy) ethane (TEGDME; triglyme)	1000 (article)	REACH Reg. 1907/2006
1,2-dimethoxyethane; ethylene glycol dimethyl ether(EGDME)	1000 (article)	REACH Reg. 1907/2006
Diboron trioxide	1000 (article)	REACH Reg. 1907/2006
Formamide	1000 (article)	REACH Reg. 1907/2006
Lead(II) bis(methanesulfonate)	1000 (article)	REACH Reg. 1907/2006
1,3,5-tris(oxiranylmethyl)-1,3,5-triazine-2,4,6(1H,3H,5H)-trione (TGIC)	1000 (article)	REACH Reg. 1907/2006
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (β -TGIC)	1000 (article)	REACH Reg. 1907/2006
4,4'-bis(dimethylamino)benzo phenone (Michler's ketone)	1000 (article)	REACH Reg. 1907/2006
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	1000 (article)	REACH Reg. 1907/2006
[4-[[4-anilino-1-naphthyl]]4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride (C.I. Basic Blue 26) [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	1000 (article)	REACH Reg. 1907/2006
[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene] dimethyl ammonium chloride (C.I. Basic Violet 3) [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	1000 (article)	REACH Reg. 1907/2006
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol [with $\geq 0.1\%$ of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]	1000 (article)	REACH Reg. 1907/2006
α,α -Bis[4-(dimethylamino)phenyl] -4	1000 (article)	REACH Reg. 1907/2006

(phenylamino)naphthalene-1-methanol (C.I. Solvent Blue 4) [with ≥ 0.1% of Michler's ketone (EC No. 202-027-5) or Michler's base (EC No. 202-959-2)]		
Bis(pentabromophenyl) ether (decabromodiphenyl ether; DecaBDE)	1000 (article)	REACH Reg. 1907/2006
Pentacosafuorotridecanoic acid	1000 (article)	REACH Reg. 1907/2006
Tricosafuorododecanoic acid	1000 (article)	REACH Reg. 1907/2006
Henicosafuoroundecanoic acid	1000 (article)	REACH Reg. 1907/2006
Heptacosafuorotetradecanoic acid	1000 (article)	REACH Reg. 1907/2006
Diazene-1,2-dicarboxamide (C,C'-azodi (formamide))	1000 (article)	REACH Reg. 1907/2006
Cyclohexane-1, 2-dicarboxylic anhdride [1], cis-cyclohexane-1,2-dicarboxylic anhydride [2], trans-cyclohexane-1,2-dicarboxylic anhydride [3], [The individual cis- [2] and trans - [3] isomer substances and all possible combinations of the cis- and trans- isomers [1] are covered by this entry].	1000 (article)	REACH Reg. 1907/2006
Methoxyacetic acid	1000 (article)	REACH Reg. 1907/2006
N,N-dimethylformamide	1000 (article)	REACH Reg. 1907/2006
Dibutyltin dichloride (DBTC)	1000 (article)	REACH Reg. 1907/2006
Lead monoxide (Lead oxide)	1000 (article)	REACH Reg. 1907/2006
Orange lead (Lead tetroxide)	1000 (article)	REACH Reg. 1907/2006
Lead bis(tetrafluoroborate)	1000 (article)	REACH Reg. 1907/2006
Tri-lead bis(carbonate) dihydroxide	1000 (article)	REACH Reg. 1907/2006
Hexahydromethylphthalic anhydride [1], Hexahydro-4-methylphthalic anhydride [2], Hexahydro-1-methylphthalic anhydride [3], Hexahydro-3-methylphthalic anhydride [4] [The individual isomers [2], [3] and [4] (including their cis- and trans- stereo isomeric forms) and all possible combinations of the isomers [1] are covered by this entry]	1000 (article)	REACH Reg. 1907/2006
4-Nonylphenol, branched and linear [substances with a linear and/or branched alkyl chain with a carbon number of 9 covalently bound in position 4 to phenol, covering also UVCB- and well-defined substances which include any of the individual isomers or a combination thereof]	1000 (article)	REACH Reg. 1907/2006
4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]	1000 (article)	REACH Reg. 1907/2006
Lead titanium trioxide	1000 (article)	REACH Reg. 1907/2006
Lead titanium zirconium oxide	1000 (article)	REACH Reg. 1907/2006
Silicic acid, lead salt	1000 (article)	REACH Reg. 1907/2006
1-bromopropane (n-propyl bromide)	1000 (article)	REACH Reg. 1907/2006
Methyloxirane (Propylene oxide)	1000 (article)	REACH Reg. 1907/2006
1,2-Benzenedicarboxylic acid, dipentylester, branched & linear	1000 (article)	REACH Reg. 1907/2006
Diisopentylphthalate (DIPP)	1000 (article)	REACH Reg. 1907/2006
N-pentyl-isopentylphthalate	1000 (article)	REACH Reg. 1907/2006
1,2-diethoxyethane	1000 (article)	REACH Reg. 1907/2006
Acetic acid, lead salt, basic	1000 (article)	REACH Reg. 1907/2006
Lead oxide sulfate	1000 (article)	REACH Reg. 1907/2006
[Phthalato(2-)]dioxotrilead	1000 (article)	REACH Reg. 1907/2006
Dioxobis(stearato)trilead	1000 (article)	REACH Reg. 1907/2006
Fatty acids, C16-18, lead salts	1000 (article)	REACH Reg. 1907/2006
Silicic acid (H ₂ Si ₂ O ₅), barium salt(1:1), lead-doped	1000 (article)	REACH Reg. 1907/2006

[with lead (Pb) content above the applicable generic concentration limit for 'toxicity for reproduction' Repr. 1A (CLP) or category 1 (DSD); the substance is a member of the group entry of lead compounds, with index number 082-001- 00-6 in Regulation (EC) No 1272/2008]		
Lead cyanidate	1000 (article)	REACH Reg. 1907/2006
Lead dinitrate	1000 (article)	REACH Reg. 1907/2006
Pentalead tetraoxide sulphate	1000 (article)	REACH Reg. 1907/2006
Pyrochlore, antimony lead yellow	1000 (article)	REACH Reg. 1907/2006
Sulfurous acid, lead salt, dibasic	1000 (article)	REACH Reg. 1907/2006
Tetraethyl lead	1000 (article)	REACH Reg. 1907/2006
Tetralead trioxide sulphate	1000 (article)	REACH Reg. 1907/2006
Trilead dioxide phosphonate	1000 (article)	REACH Reg. 1907/2006
Furan	1000 (article)	REACH Reg. 1907/2006
Diethyl sulphate	1000 (article)	REACH Reg. 1907/2006
Dimethyl sulphate	1000 (article)	REACH Reg. 1907/2006
3-ethyl-2-methyl-2-(3-methyl butyl)-1,3-oxazolidine	1000 (article)	REACH Reg. 1907/2006
Dinoseb (6-sec-butyl-2,4-dinitrophenol)	1000 (article)	REACH Reg. 1907/2006
4,4'-methylenedi-o-toluidine	1000 (article)	REACH Reg. 1907/2006
4,4'-oxydianiline and its salts	1000 (article)	REACH Reg. 1907/2006
4-aminoazobenzene	1000 (article)	REACH Reg. 1907/2006
4-methyl-m-phenylenediamine (toluene-2,4-diamine)	1000 (article)	REACH Reg. 1907/2006
6-methoxy-m-toluidine (p-cresidine)	1000 (article)	REACH Reg. 1907/2006
Biphenyl-4-ylamine	1000 (article)	REACH Reg. 1907/2006
o-aminoazotoluene [(4-o-tolylazo-otoluidine)]	1000 (article)	REACH Reg. 1907/2006
o-toluidine	1000 (article)	REACH Reg. 1907/2006
N-methylacetamide	1000 (article)	REACH Reg. 1907/2006

Exemptions (as stated in Annex III of Directive 2011/65/EU published 1 July 2011 that have not expired by 31 January 2013) NOTE: Exemptions listed below may expire if not renewed timely by manufacturers of items listed in future years.

1. Mercury in single capped (compact) fluorescent lamps not exceeding per burner :
 - a. For general lighting purposes, <30 W – 2.5 mg per burner after 31 December 2012
 - b. For general lighting purposes, 30-50W – 3.5 mg per burner after 31 December 2011
 - c. For general lighting purposes, 50-150W – 5 mg per burner
 - d. For general lighting purposes, >= 150W – 15 mg per burner
 - e. For general lighting purposes with circular or square rectangular shape and tube diameter <= 17 mm – 7 mg per burner
 - f. For special purposes – 5 mg per burner
2. Mercury in double capped fluorescent lamps for general lighting purposes not exceeding per lamp:
 - a.1 Tri-band phosphor and <= 9 mm diameter (T2) - 4 mg
 - a.2 Tri-band phosphor and diameter >= 9 but <= 17 mm (T5) - 3 mg
 - a.3 Tri-band phosphor and diameter >17 but <28 mm (T8) - 3.5 mg.
 - a.4 Tri-band phosphor and diameter >28 mm (T12) – 3.5 mg

- a.5 Tri-band phosphor with long lifetime (>25,000 hrs) – 5 mg
- b. Other fluorescent lamps not exceeding per lamp:
 - 1. Linear halophosphate with tube > 28 mm (T10 & T12) - 10 mg
 - 2. Non-linear halophosphate, all diameters - 15 mg
 - 3. Non-linear tri-band phosphor with tube >17 mm (T9) – 15 mg
 - 4. Other general lighting & special purposes (induction lamps) – 15 mg
- 3. Mercury in cold cathode fluorescent lamps for special purposes:
 - a. Short length (<= 500 mm) - 3.5 mg
 - b. Medium length (>500 mm but <= 1500 mm) - 5 mg
 - c. Long length (>1500 mm) - 13
- 4. a. Mercury in other low pressure discharge lamps - 15 mg
 - b. High Pressure Sodium (vapor) lamps for general lighting purposes not exceeding per burner in lamps with improved color rendering index Ra 60:
 - 1. <= 155 W - 30 mg
 - 2. > 155 W and <= 405 W - 40 mg
 - 3. > 405 W - 40 mg
 - c. High Pressure Sodium (vapor) lamps for general lighting purposes not exceeding per burner:
 - 1. <= 155 W - 25 mg
 - 2. > 155 W and <= 405 W - 30 mg
 - 3. > 405 W - 40 mg
 - d. Mercury in High Pressure Mercury (vapor) lamps (HPMV) Expires 4/13/15
 - a. Mercury in metal halide lamps (MH)
- 5.a. Lead in glass of cathode ray tubes
- 5.b. Lead in glass of fluorescent tubes not exceeding 0.2% by weight
- 6.a. Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0.35 % lead by weight,
- 6.b. Lead as an alloying element in aluminum containing up to 0.4 % lead by weight
- 6.c. Copper alloy containing up to 4 % lead by weight.
- 7.a. Lead in high melting temperature type solders (i.e. lead based alloys containing more than 85 % by weight or more lead).
- 7.b. Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications.
- 7.c.1. Electronic and electrical components containing lead in glass or ceramic other than dielectric ceramic in capacitors, (e.g. piezoelectronic devices, Or in a glass or ceramic matrix compound.
- 7.c.2. Lead in dielectric ceramic capacitors for a rated voltage of 125 VAC or 250 VDC or higher.
- 7.c.4. Lead in PZT based ceramic materials for capacitors being part of integrated circuits or discrete semiconductors.
- 8.b. Cadmium and its compounds in electrical contacts
- 9. Hexavalent chromium as an anti-corrosion of the carbon steel cooling system in adsorption refrigerators up to 0.75% by weight in the cooling solution.

13.a. Lead in white glasses used for optical applications.

13.b. Cadmium and lead in filter glasses and glasses used for reflectance standards.

15. Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit flip chip packages.

17. Lead halide as radiant agent in High Intensity Discharge (HID) lamps used for professional reprography applications.

18.b. Lead as activator in the fluorescent powder (1% lead by weight or less) of discharge lamps when used as sun tannin lamps containing phosphors such as BSP ($\text{BaSi}_6\text{O}_5\text{:Pb}$).

21. Lead and cadmium in printing inks for the application of enamels on glasses such as borosilicate and soda lime glasses.

24. Lead in solders for the soldering to machined through hole discoidal and planar array ceramic multilayer capacitors.

25. Lead oxide in surface conduction electron emitter displays (SED) used in structural elements; notably in the seal frit and frit ring.

29. Lead bound in crystal glass as defined in Annex I (Categories 1, 2, 3 and 4) of Council Directive 69/493/EEC (1)

30. Cadmium alloys as electrical/mechanical solder joints to electrical conductors located directly on the voice coil in transducers used in high-powered loudspeakers with sound pressure levels of 100 dB (A) and more

31. Lead in soldering materials in mercury free flat fluorescent lamps (which e.g. are used for liquid crystal displays, design or industrial lighting)

32. Lead oxide in seal frit used for making window assemblies for Argon and Krypton laser tubes

33. Lead in solders for the soldering of thin copper wires of 100 μm diameter and less in power transformers

34. Lead in cermet-based trimmer potentiometer elements

37. Lead in the plating layer of high voltage diodes on the basis of a zinc borate glass body

38. Cadmium and cadmium oxide in thick film pastes used on aluminum bonded beryllium oxide

39. Cadmium in colour-converting II-VI LEDs ($< 10 \mu\text{g Cd per mm}^2$ of light-emitting area) for use in solid state illumination or display systems until 1 July 2014.

40. Cadmium in photoresistors for analogue optocouplers applied tin professional audio equipment.

END TABLE 1