

Jul 22, 2012

Material Contents of TowerJazz FAB 3 (Jazz Semiconductor, Newport Beach, CA) Wafers

To All Interested Parties,

TowerJazz FAB 3 hereby notifies all interested parties of the element content of the wafers manufactured at its Newport Beach, CA semiconductor facility. Due to the wide variety of processes and variants offered by TowerJazz, this information is presented as the highest estimated range for the BC35, BCD05, BCD25, C05, C13, C18, C25, C35, SBC13, SBC35, SBC18 and SBL13 processes.

LEAD (Pb) FREE STATEMENT:

TowerJazz declares that integrated circuits manufactured at TowerJazz facilities are free of lead ("Pb-Free") per third party analysis. TowerJazz use of the terms "Pb-Free" or "Lead Free" mean that the product does not contain any lead in homogeneous materials as defined under the European Union's Restriction on uses of certain hazardous substances in Electrical and Electronic Equipment (RoHS Directive), EU 2002/95/EC.

SGS Test Report: CE/2011/C4186, dated December 30, 2011

RoHS DIRECTIVE STATEMENT:

In addition to lead, TowerJazz further declares that integrated circuits manufactured at TowerJazz facilities do not contain in homogeneous materials any of the other five substances (mercury, cadmium, hexavalent chromium, PBB and PBDE) currently restricted under the RoHS Directive. This information is based upon TowerJazz understanding of the RoHS Directive, our knowledge and independent test results of the materials that are used in our current manufacturing process and from our suppliers of silicon wafers.

SGS Test Report: CE/2011/C4186, dated December 30, 2011

Element	Symbol	Concentration
Cadmium	Cd	Not Detected
Lead	Pb	Not Detected
Mercury	Hg	Not Detected
Hexavalent Chromium	Cr(VI)	Not Detected

Sum of PBBs	Concentration
Monobromobiphenyl	Not Detected
Dibromobiphenyl	Not Detected
Tribromobiphenyl	Not Detected
Tetrabromobiphenyl	Not Detected
Hexabromobiphenyl	Not Detected
Heptabromobiphenyl	Not Detected
Octabromobiphenyl	Not Detected
Nonabromobiphenyl	Not Detected
Decabromobiphenyl	Not Detected
Sum of PBDEs	Concentration
Monobromodiphenyl ether	Not Detected
Dibromodiphenyl ether	Not Detected
Tribromodiphenyl ether	Not Detected
Tetrabromodiphenyl ether	Not Detected
Pentabromodiphenyl ether	Not Detected
Hexabromodiphenyl ether	Not Detected
Heptabromodiphenyl ether	Not Detected
Octabromodiphenyl ether	Not Detected
Nonabromodiphenyl ether	Not Detected
Decabromodiphenyl ether	Not Detected

OZONE DEPLETING CHEMICAL (ODC) STATEMENT:

TowerJazz warrants that its products do not contain any Class I or Class II ozone depleting substance as defined in Title VI of the Clean Air Act, 42 U.S.C. Section 601, et seq., and the implementing regulations of the U.S. Environmental Protection Agency at 40 C.F.R. Part 82, et seq. TowerJazz further warrants that its products have not been "manufactured with a controlled substance" as that term has been defined by the U.S. Environmental Protection Agency in 40 C.F.R. Section 82.104(o)(4).

SGS Test Report: CE/2011/C4186, dated December 30, 2011

JGPSSI (JIG-101) STATEMENT:

TowerJazz warrants that its products do not "contain" nor are they "manufactured with" a controlled substance listed in JGPSSI (JIG-101). The major categories of chemicals that TowerJazz certifies are not contained in their wafers and that the wafers are not manufactured with are as follows:

- Asbestos and Asbestos Materials
- Azo-based dyes and colorants
- Cadmium and Cadmium compounds
- Chromium VI and Chromium Compounds
- Lead and Lead Compounds
- Mercury and Mercury compounds
- Ozone Depleting Substances - Chlorinated Fluoro Carbons (CFC's)
- Ozone Depleting Substances - Hydro Chloro Fluoro Carbons (HCFCs) / Isomers
- Ozone Depleting Substances - Hydro Bromo Fluoro Carbons (HBFC's)
- Polybrominated Biphenyls (PBBs) their Ethers (PBDEs, PBBEs) and their Oxides
- Polychlorinated Biphenyls (PCBs) and Terphenyls (PCTs)
- Polychlorinated Naphthalenes (more than three chlorine atoms)
- Radioactive Substances
- Shortchain Chlorinated paraffin
- Tributyl Tin, Triphenyl Tin and oxides
- Antimony and Antimony Compounds
- Beryllium and Beryllium Compounds
- Nickel
- Brominated Flame Retardants (other than PBB's or PBDE's)
- Phthalates
- Polyvinyl Chloride (PVC)

SGS Test Report: CE/2011/C4186, dated December 30, 2011

REACH STATEMENT

The substances listed below consist of the eighty-four (84) Substances of Very High Concern (SVHC) screening. SVHC candidate list based on the publication by European Chemicals Agency (ECHA) on 2012 June 18, regarding Regulation (EC) No 1907/2006 concerning the REACH. These substances have been reviewed and are not present in TowerJazz product.

Substance Name	CAS No	Concentration	Property
Acrylamide	79-06-1	ND	Carcinogen
Alkanes, C10-13, chloro (Short Chain Chlorinated Paraffins)	85535-84-8	ND	PBT
Aluminosilicate, Refractory Ceramic Fibers oxides of aluminum and silicon are the main components present (in the fibers) within variable concentration ranges		ND	Carcinogenic
Ammonium dichromate	9/5/7789	ND	Carcinogen
Anthracene	120-12-7	ND	PBT
Anthracene oil	90640-80-5	ND	Carcinogen
Anthracene oil, anthracene paste	90640-81-6	ND	Carcinogen
Anthracene oil, anthracene paste, anthracene fraction	91995-15-2	ND	Carcinogen
Anthracene oil, anthracene paste, distn. Lights	91995-17-4	ND	Carcinogen
Anthracene oil, anthracene-low	90640-82-7	ND	Carcinogen

Arsenic acid	7778-39-4	ND	Carcinogenic
BBP (Benzyl butyl phthalate)	85-68-7	ND	ToxicRepro
Bis (2-methoxyethyl) ether	111-96-6	ND	ToxicRepro
Bis (2-methoxyethyl) phthalate	117-82-8	ND	ToxicRepro
Bis(tributyltin)oxide	56-35-9	ND	PBT
Boric acid	10043-35-3 11113-50-1	ND	ToxicRepro
Calcium arsenate	7778-44-1	ND	Carcinogenic
Chromium trioxide	1333-82-0	ND	Carcinogen
Cobalt dichloride	7646-79-9	ND	Carcinogen
Cobalt(II) carbonate	513-79-1	ND	Carcinogen
Cobalt(II) diacetate	71-48-7	ND	Carcinogen
Cobalt(II) dinitrate	10141-05-6	ND	Carcinogen
Cobalt(II) sulphate	10124-43-3	ND	Carcinogen
Diarsenic pentaoxide	1303-28-2	ND	Carcinogen
Diarsenic trioxide	1327-53-3	ND	Carcinogen
DBP (Dibutyl phthalate)	84-74-2	ND	ToxicRepro
Dichromium tris (chromate)	24613-89-6	ND	Carcinogenic
Disodium tetraborate, anhydrous	1303-96-4 1330-43-4 12179-04-3	ND	ToxicRepro
Formaldehyde, oligomeric reaction products with aniline (technical MDA)	25214-70-4	ND	Carcinogenic
Hexabromocyclododecane (HBCDD) and all major diastereoisomers identified (- HBCDD, - HBCDD, - HBCDD)	25637-99-4 3194-55-6 134237-51-7 134237-50-6 134237-52-8	ND	PBT
Hydrazine	7803-57-8 302-01-2	ND	Carcinogenic
Lead chromate	7758-97-6	ND	Carcinogen ToxicRepro
Lead chromate molybdate sulphate red (C.I. Pigment Red 104)	12656-85-8	ND	Carcinogen ToxicRepro
Lead diazide, Lead azide	13424-46-9	ND	ToxicRepro
Lead dipicrate	6477-64-1	ND	ToxicRepro
Lead hydrogen arsenate	7784-40-9	ND	Carcinogen
Lead styphnate	15245-44-0	ND	ToxicRepro
Lead sulfochromate yellow (C.I. Pigment Yellow 34)	1344-37-2	ND	Carcinogen ToxicRepro
N,N-dimethylacetamide (DMAC)	127-19-5	ND	ToxicRepro
Pentazinc chromate octahydroxide	49663-84-5	ND	Carcinogenic
Phenolphthalein	77-09-8	ND	Carcinogenic
Pitch, coal tar, high-temp.	65996-93-2	ND	Carcinogen
Potassium chromate	7789-00-6	ND	Carcinogen
Potassium dichromate	7778-50-9	ND	Carcinogen
Potassium hydroxyoctaoxodizincatedi- chromate	11103-86-9	ND	Carcinogenic
Sodium chromate	11/3/7775	ND	Carcinogen
Sodium dichromate	7789-12-0	ND	Carcinogen
Strontium chromate	7789-6-2	ND	Carcinogenic
Tetraboron disodium heptaoxide, hydrate	12267-73-1	ND	ToxicRepro
Trichloroethylene	79-01-6	ND	Carcinogen
Triethyl arsenate	15606-95-8	ND	Carcinogen

Trilead diarsenate	3687-31-8	ND	Carcinogenic
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	ND	ToxicRepro
Zirconia Aluminosilicate, Refractory Ceramic Fibers oxides of aluminum, silicon and zirconium are the main components present (in the fibers) within variable concentration ranges		ND	Carcinogenic
2,2'-dichloro- 4,4'-methylenedianiline (MOCA)	101-14-4	ND	Carcinogenic
1,2-Dichloroethane	107-06-2	ND	Carcinogenic
2-ethoxyethyl acetate	111-15-9	ND	ToxicRepro
4-(1,1,3,3-tetramethylbutyl) phenol, (4-tert-Octylphenol)	140-66-9	ND	EquivConcern
1,2-Benzenedicarboxylic acid, di-C7-11-branched and linear alkyl esters	68515-42-4	ND	ToxicRepro
1,2-Benzenedicarboxylic acid, di-C6-8-branched alkyl esters, C7-rich	71888-89-6	ND	ToxicRepro
1-methyl-2-pyrrolidone	872-50-4	ND	ToxicRepro
2-Methoxyaniline; o-Anisidine	90-04-0	ND	Carcinogenic
1,2,3-trichloropropane	96-18-4	ND	Carcinogenic
4,4' - Diaminodiphenylmethane	101-77-9	ND	Carcinogen
Ethylene glycol monomethyl ether	109-86-4	ND	ToxicRepro
Ethylene glycol monoethyl ether	110-80-5	ND	ToxicRepro
DEHP (Di- (2-ethylhexyl) phthalate)	117-81-7	ND	ToxicRepro
2,4-Dinitrotoluene (CAS No.: 000121-14-2)	121-14-2	ND	Carcinogen
DIBP (Di-isobutyl phthalate)	84-69-5	ND	ToxicRepro
Acids generated from chromium trioxide and their oligomers: Chromic acid	7738-94-5	ND	Carcinogen
5-tert-butyl-2,4,6-trinitro- m-xylene (Musk Xylene)	81-15-2	ND	vPvB
N,N,N',N'-tetramethyl-4,4'-methylenedianiline (Michler's base)	101-61-1	Test Pending ECD 11/15/12	Carcinogenic
1,2-dimethoxyethane; ethylene glycol dimethyl ether (EGDME)	110-71-4	Test Pending ECD 11/15/12	ToxicRepro
1,2-bis(2-methoxyethoxy)ethane (TEGDME; triglyme)	112-49-2	Test Pending ECD 11/15/12	ToxicRepro
Diboron trioxide	1303-86-2	Test Pending ECD 11/15/12	ToxicRepro
Lead(II) bis(methanesulfonate)	17570-76-2	Test Pending ECD 11/15/12	ToxicRepro
1,3,5-Tris(oxiran-2-ylmethyl)-1,3,5-triazinane-2,4,6-trione (TGIC)	2451-62-9	Test Pending ECD 11/15/12	Mutagenic
[4-[[4-anilino-1-naphthyl][4-(dimethylamino)phenyl]methylene]cyclohexa-2,5-dien-1-ylidene] dimethylammonium chloride with 0.1% of Michler's ketone or base (Basic Blue 26)	2580-56-5	Test Pending ECD 11/15/12	Carcinogenic
[4-[4,4'-bis(dimethylamino) benzhydrylidene]cyclohexa-2,5-dien-1-ylidene]dimethylammonium chloride with 0.1% of Michler's ketone	548-62-9	Test Pending ECD 11/15/12	Carcinogenic
4,4'-bis(dimethylamino)-4''-(methylamino)trityl alcohol with 0.1% of Michler's ketone or base	561-41-1	Test Pending ECD 11/15/12	Carcinogenic
1,3,5-tris[(2S and 2R)-2,3-epoxypropyl]-1,3,5-triazine-2,4,6-(1H,3H,5H)-trione (-TGIC)	59653-74-6	Test Pending ECD 11/15/12	Mutagenic
, -Bis[4-(dimethylamino)phenyl]-4 (phenylamino)naphthalene-1-methanol with 0.1% of Michler's ketone or base (Solvent Blue 4)	6786-83-0	Test Pending ECD 11/15/12	Carcinogenic
Formamide	75-12-7	Test Pending ECD 11/15/12	ToxicRepro

Sony Green Partner Statement

TowerJazz adheres to Sony Green SS-00259 standards and has systems in place to prevent any environmentally related controlled substances from being introduced into our products. In addition, we are a cadmium free and lead free facility since October, 2003. Listed below are the results from third party analysis of all banned substances.

Substances		Concentration
Heavy metals	Cadmium and cadmium compounds	ND
	Lead and lead compounds	ND
	Mercury and mercury compounds	ND
	Hexavalent chromium compounds	ND
Chlorinated organic compounds	Polychlorinated biphenyls (PCB)	ND
	Polychlorinated naphthalenes (PCN)	ND
	Polychlorinated terphenyls (PCT)	ND
	Short-chain chlorinated paraffins (SCCP)	ND
	Other chlorinated organic compounds	ND
Brominated organic compounds	Polybrominated biphenyls (PBB)	ND
	Polybrominated diphenylethers (PBDE) (including decabromodiphenyl ether [DecaBDE])	ND
	Other brominated organic compounds	ND
Trisubstituted organotin compounds (including tributyltin (TBT) compounds and triphenyltin (TPT) compounds)		ND
Dibutyltin (DBT) compounds		ND
Diocetyl tin (DOT) compounds		ND
Asbestos		Negative
Specific azo compounds		ND
Formaldehyde		ND
Polyvinyl chloride (PVC) and PVC blends		Negative
Beryllium oxide		ND
Beryllium copper		ND
Specific phthalates (DEHP, DBP, BBP, DINP, DIDP, DNOP, DNHP)		ND
Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)		ND
Perfluorooctane sulfonates (PFOS)		ND
Specific benzotriazole		ND
Cobalt dichloride		ND
Ozone depleting substances (ODS)		ND
Dimethyl fumarate (DMF)		ND
Amine Compounds		ND

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