

**CRESCENT BAHUMAN LTD
CHEMICAL USE AND DISCHARGE REPORT**

DECEMBER 2013

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Introduction

Levi Strauss & Co. (LS&Co.) is committed to minimizing the environmental impacts of its clothing manufacturing process. In line with the Joint Roadmap toward Zero Discharge of Hazardous Chemicals and the precautionary principle, LS&Co. is committed to the goal of zero discharge of hazardous chemicals from all its products across all pathways of release in our supply chain by 2020.

Stringent requirements for chemical compliance have been an integral part of LS&Co.'s production process. In 2000, LS&Co. was one of the first companies to establish a Restricted Substances List (RSL), identifying chemicals that are prohibited in the manufacturing of our products.

As we advance our commitment to zero discharge of hazardous chemicals, LS&Co. is performing a benchmark study of chemical use and discharge of 11 priority groups of chemicals from a total of 45 supplier facilities located in key production markets (i.e., Mexico, China, India, Bangladesh, Cambodia, Sri Lanka, Pakistan, Vietnam, Egypt, Nicaragua and Lesotho).

Eleven Priority Chemical Groups

1. Azo dyes
2. Alkylphenol(AP) and alkylphenol ethoxylates(APEOS)
3. Brominated & Chlorinated Flame retardants
4. Chlorophenols
5. Chlorinated aromatics
6. Chlorinated solvents
7. Organotin compounds
8. Phthalates
9. Short chain chlorinated paraffins (SCCPs)
10. Heavy metals
11. Perfluorinated chemicals (PFCs)

The results will help to establish a baseline understanding of chemical use and discharge in order to focus capacity building, process change, and policy change with suppliers toward the goal of zero discharge of hazardous chemicals in the apparel industry. It also will help to understand how to organize and improve supplier transparency.

LS&Co. will follow up with each of the 45 supplier facilities to discuss the findings of this report and outline actions to be taken by the facility to meet the goal of zero discharge of hazardous chemicals.

The water samples were collected and tested by Bureau Veritas for this facility. NimkarTek Technical Services provided data management, consolidation and reporting of the data and information.

Supplier Facility Details

Crescent Bahuman Ltd is located in Hafizabad, Pakistan. The facility belongs to the textile and apparel sector with the following activities: ginning, weaving, processing of yarn, dyeing, cut, sew, print, dry and wet finishing.

Sampling and testing of the influent and effluent water was performed by Bureau Veritas¹

Chemical Use Data Collection

LS&Co. established and communicated a PSD (Priority Substances Disclosure) form, to the supplier facilities to gather data on the existence of the 11 priority chemical group substances in chemical products and preparations used on site for production, wastewater treatment, maintenance, laboratory, and sanitary activities.

LS&Co. requested the supplier facilities to forward the form for completion by their chemical suppliers.

Prior to collection of the PSD form, facilities consolidated their chemical inventories to ensure full facility chemical product use were covered, together with chemical supplier information. This was used to indicate how many PSD forms should be requested by each supplier facility.

Chemical inventories and PSD Form completion were checked before final submission by deadline.

The table below summarizes the results of the chemical suppliers' disclosure.

Based on the responses received, chemical suppliers are rated either-

Good response chemical supplier submitted a complete PSD form with all references for analytes

Fair response chemical supplier submitted a complete PSD form with no knowledge of analytes

No response chemical supplier submitted an incomplete PSD form and/or did not submit PSD form

CHEMICAL SUPPLIER RESPONSE	NUMBER
Chemical suppliers supplying factory	50
Good response	24
Fair response	0
No response	26

Annex I includes an example of the chemical use data collection form and process for data collection.

Annex II includes a table with the information received.

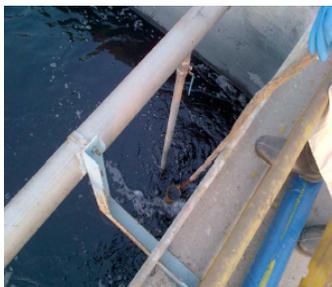
¹ In preparing this facility report [these facility reports], LS&Co. has undertaken substantial efforts globally to provide, in a short time frame, information regarding various chemicals. While for any data point it is possible that the result is in error (e.g., because of laboratory cross-contamination), LS&Co. is hopeful that the data will nevertheless be useful in helping identify where these chemicals are being used, and thus be useful in the ongoing efforts to eliminate discharge of these chemicals. No one in reviewing these data should infer that, by making these data available or by taking steps to eliminate discharge of these chemicals, the company is admitting that a particular data point is accurate, representative, or toxicologically or environmentally significant.

Influent, Process Water and Effluent Sample Collection

Sampling of the influent, process water and effluent was performed by Bureau Veritas and testing by Bureau Veritas. The sample was taken 24th October 2013 during regular business operations.



Influent



Process Water



Effluent

Annexes III and IV contain the full influent, process water and effluent data.

Executive Summary

11 PRIORITY CHEMICAL GROUPS	INFLUENT	PROCESS WATER	EFFLUENT
Phthalates	x	x	x
Flame Retardants	x	x	x
Azo Dyes	x	x	x
Organotin Compounds	x	x	x
Chlorobenzenes	x	x	x
Chlorinated Solvents	x	x	x
Chlorophenols	x	x	x
SCCPs	x	x	x
Heavy Metals	√	√	√
APs and APEOs	x	x	x
Perfluorinated Chemicals	x	x	x

Detected = √; Not detected = x

Analytes found in individual priority chemical group

The analytes (a substance or chemical constituent) found in the influent and effluent samples are tabulated below for each priority chemical group. **All reporting values are in parts per billion (ppb).** As the data is presented in parts per billion (ppb), it should be understood that the detection of these analytes may be below the local, provincial, and national standards set for industrial discharge for each country.

Summary table of analytes detected in influent, process water and effluent

PC GROUP	ANALYTES	REPORTING LIMIT (ppb)	INFLUENT (ppb)	PROCESS WATER (ppb)	EFFLUENT (ppb)
Heavy Metals	Zinc	1	ND	17.77	ND
	Copper, Cu	1	9.3	13.35	ND
	Cadmium, Cd	0.1	ND	18.99	3.61
	Lead, Pb	1	5.59	14.77	2.5

Annex I: Chemical use data information form and process

Due to concern about the comprehensiveness of Safety Data Sheets (SDS), and the absence of a standardized process to collect data on facility chemical use of the 11 priority chemical groups, an alternative data collection approach requiring direct input from chemical suppliers was used. The following Priority Substances Disclosure (PSD) Form was developed to standardize the data collection process. (See following page.)

Annex II: Chemical Use Data

CHEMICAL SUPPLIER	PRIORITY CHEMICAL GROUP PRESENT	ANALYTES/ SUBSTANCE NAME	CAS #	TARGET DATE TO ELIMINATE	REMARKS
#1	Heavy Metals	Copper, Cu	7440-50-8	Not mentioned	Reactive Blue NJ: 1.4% Cu as complex. Reactive Turq Blue NJ (new): 80-70% phthalocyanine containing Copper
#3	Heavy Metals	Copper, Cu	7440-50-8	Not planned	The 3 products contain organic colourants which are Cu complexes. The Cu is bounded as part of the colourant molecule.
#20	Azo dyes	o-Anisidine	90-04-0	Not mentioned	Indosol Flavine 5G contains one of the 105 substances.
		p-Cresidine	120-71-8	Not mentioned	Indosol Brown RBL contains one of the 105 substances.

Annex III: Basic Chemistry

TEST	INFLUENT	PROCESS WATER	EFFLUENT	UNIT
Colour	Colourless	Greyish Blue	Light Blue	--
pH Value	6.93	9.38	7.15	--
Temperature	32	37	36	(°C)
Total Suspended Solids (TSS)	-	149	26	(mg/L)
Biological Oxygen Demand (BOD)	-	88	25	(mg/L)
Chemical Oxygen Demand (COD)	-	596	109	(mg/L)

Annex IV: Influent, Process water and Effluent report

Chemical Group	Analytes	Analysis Method	CAS No	Influent (ppb)	Process water (ppb)	Effluent (ppb)	Reporting Limit (ppb)
Phthalates	Di-isobutyl phthalate (DIBP)	US EPA 8270D	84-69-5	ND	ND	ND	1
	Dibutyl phthalate (DBP)		84-74-2	ND	ND	ND	1
	Di-2-ethylhexyl phthalate (DEHP)		117-81-7	ND	ND	ND	1
	Butyl benzyl phthalate (BBP)		85-68-7	ND	ND	ND	1
	Di-n-octyl phthalate (DNOP)		117-84-0	ND	ND	ND	1
	Di-iso-nonyl phthalate (DINP)		28553-12-0, 68515-48-0	ND	ND	ND	1
	Di-iso-decyl phthalate (DIDP)		26761-40-0, 68515-49-1	ND	ND	ND	1
	Dimethyl phthalate (DMP)		131-11-3	ND	ND	ND	1
	Diethyl phthalate (DEP)		84-66-2	ND	ND	ND	1
	Di-n-propyl phthalate (DPRP)		131-16-8	ND	ND	ND	1
	Di-cyclohexyl phthalate (DCHP)		84-61-7	ND	ND	ND	1
	Di-n-hexyl phthalate (DnHP)		84-75-3	ND	ND	ND	1
	Dinonyl phthalate (DNP)		84-76-4	ND	ND	ND	1
	Di-iso-octyl phthalate (DIOP)		27554-26-3	ND	ND	ND	1
Dimethoxyethyl phthalate (DMEP)	117-82-8	ND	ND	ND	1		
Azo Dyes	4-aminodiphenyl	DIN 38407-17; EN 14362-3	92-67-1	ND	ND	ND	0.1
	Benzidine		92-87-5	ND	ND	ND	0.1
	4-chloro-o-toluidine		95-69-2	ND	ND	ND	0.1
	2-naphthylamine		91-59-8	ND	ND	ND	0.1
	o-aminoazotoluene		97-56-3	ND	ND	ND	0.1
	5-nitro-o-toluidine (2-Amino-4-nitrotoluene)		99-55-8	ND	ND	ND	0.1
	4-chloroaniline (p-chloroaniline)		106-47-8	ND	ND	ND	0.1
	4-methoxy-m-phenylenediamine		615-05-4	ND	ND	ND	0.1
	4,4'-diaminodiphenylmethane		101-77-9	ND	ND	ND	0.1
	3,3'-dichlorobenzidine		91-94-1	ND	ND	ND	0.1

Chemical Group	Analytes	Analysis Method	CAS No	Influent (ppb)	Process water (ppb)	Effluent (ppb)	Reporting Limit (ppb)
	3,3'-dimethoxybenzidine (o-dianisidine)		119-90-4	ND	ND	ND	0.1
	3,3'-dimethylbenzidine (4,4'-bi-o-toluidine)		119-93-7	ND	ND	ND	0.1
	4,4'-methylenedi-o-toluidine		838-88-0	ND	ND	ND	0.1
	p-cresidine (6-methoxy-m-toluidine)		120-71-8	ND	ND	ND	0.1
	4,4'-methylenedi-bis-(2-chloraniline)		101-14-4	ND	ND	ND	0.1
	4,4'-oxydianiline		101-80-4	ND	ND	ND	0.1
	4,4'-thiodianiline		139-65-1	ND	ND	ND	0.1
	o-toluidine		95-53-4	ND	ND	ND	0.1
	Aniline		62-53-3	ND	ND	ND	0.1
	Chlorobenzenes		1,3-Dichlorobenzene	US EPA 8260B	541-73-1	ND	ND
1,4-Dichlorobenzene		106-46-7	ND		ND	ND	
Chlorobenzene		108-90-7	ND		ND	ND	0.02
1,2-Dichlorobenzene		95-50-1	ND		ND	ND	0.02
1,2,3-Trichlorobenzene		87-61-6	ND		ND	ND	0.02
1,2,4-Trichlorobenzene		120-82-1	ND		ND	ND	0.02
1,3,5-Trichlorobenzene		108-70-3	ND		ND	ND	0.02
1,2,3,4-Tetrachlorobenzene		634-66-2	ND		ND	ND	0.02
1,2,3,5-Tetrachlorobenzene, 1,2,4,5-Tetrachlorobenzene		634-90-2, 95-94-3	ND		ND	ND	0.02
Pentachlorobenzene		608-93-5	ND		ND	ND	0.02
Hexachlorobenzene	118-74-1	ND	ND	ND	0.02		
SCCPS	SCCPS	ISO 12010	85535-84-8	ND	ND	ND	0.4
Heavy Metals	Zinc (Zn)	US EPA 3015A	Various	ND	17.77	ND	1
	Copper (Cu)		Various	9.3	13.35	ND	1
	Mercury (Hg)		Various	ND	ND	ND	0.05
	Nickel (Ni)		Various	ND	ND	ND	1
	Manganese (Mn)		Various	ND	ND	ND	1
	Antimony (Sb)		Various	ND	ND	ND	1
	Lead (Pb)		Various	5.59	14.77	2.5	1
	Chromium total (Cr)		Various	ND	ND	ND	1

Chemical Group	Analytes	Analysis Method	CAS No	Influent (ppb)	Process water (ppb)	Effluent (ppb)	Reporting Limit (ppb)
Heavy Metals	Arsenic (As)	US EPA 3015A	Various	ND	ND	ND	1
	Cadmium (Cd)		Various	ND	18.99	3.61	0.1
	Cobalt (Co)		Various	ND	ND	ND	1
	Chromium 6 (CrVI)		Various	ND	ND	ND	1
APS and APEOs	Nonylphenol	ASTM D7065	Various	ND	ND	ND	1
	Nonylphenol Ethoxylates		Various	ND	ND	ND	5
	Octylphenol		Various	ND	ND	ND	1
	Octylphenol Ethoxylates		Various	ND	ND	ND	5
Flame Retardants	Polybromobiphenyls (PBBs)	US EPA 527, US EPA 8321B	Various	ND	ND	ND	0.05
	Tris (2,3-dibromopropyl) phosphate (TRIS)		126-72-7	ND	ND	ND	0.5
	Polybromodiphenylethers (PBDEs)		Various	ND	ND	ND	0.05
	Tetrabromobisphenol A (TBBPA)		79-94-7	ND	ND	ND	0.5
	Bis (2,3-dibromopropyl)phosphate		5412-25-9	ND	ND	ND	2.5
	Hexabromocyclododecane (HBCDD)		3194-55-6	ND	ND	ND	0.5
	2,2'-bis(bromomethyl)-1,3-propandiol (BBMP)		3290-90-0	ND	ND	ND	2.5
	Tris (2-chloroethyl) phosphate (TCEP)		115-96-8	ND	ND	ND	0.05
	Tris- (1,3-dichloro-isopropyl) phosphate (TDCP)		13674-87-8	ND	ND	ND	0.5
Organotin Compounds	Dibutyltin (DBT)	EN ISO 17353	Various	ND	ND	ND	0.01
	Diocetyltn (DOT)		Various	ND	ND	ND	0.01
	Tributyltin (TBT)		Various	ND	ND	ND	0.01
	Triphenyltin (TPhT)		Various	ND	ND	ND	0.01
	Tricyclohexyltin (TCyHT)		Various	ND	ND	ND	0.01
	Triocetyltn (TOT)		Various	ND	ND	ND	0.01
	Tripropyltin (TPT)		Various	ND	ND	ND	0.01
Chlorinated Solvents	1,2-Dichloroethane	U SEPA 8260B	107-06-2	ND	ND	ND	100
	1,1-Dichloroethylene		75-35-4	ND	ND	ND	100
	Methylene Chloride		75-09-2	ND	ND	ND	100
	cis-1,2-Dichloroethylene		156-59-2	ND	ND	ND	100
	trans-1,2-Dichloroethylene		156-60-5	ND	ND	ND	100
	Chloroform		67-66-3	ND	ND	ND	100

Chemical Group	Analytes	Analysis Method	CAS No	Influent (ppb)	Process water (ppb)	Effluent (ppb)	Reporting Limit (ppb)
Chlorinated Solvents	1,1,1-Trichloroethane	U SEPA 8260B	71-55-6	ND	ND	ND	100
	Carbon Tetrachloride		56-23-5	ND	ND	ND	100
	Trichloroethylene		79-01-6	ND	ND	ND	100
	1,1,2-Trichloroethane		79-00-5	ND	ND	ND	100
	1,1,1,2-Tetrachloroethane		630-20-6	ND	ND	ND	100
	Tetrachloroethylene		127-18-4	ND	ND	ND	100
Chloro-phenols	Pentachlorophenol	US EPA 8270D	87-86-5	ND	ND	ND	0.5
	2,3,4,5-Tetrachlorophenol		4901-51-3	ND	ND	ND	0.5
	2,3,4,6-Tetrachlorophenol		58-90-2	ND	ND	ND	0.5
	2,3,5,6-Tetrachlorophenol		935-95-5	ND	ND	ND	0.5
PFCs	Perfluorooctanoic Acid (PFOA)	In house method	335-67-1	ND	ND	ND	0.01
	Perfluorooctane Sulphonic acid (PFOS)		2796-39-3	ND	ND	ND	0.01

Annex V: Guidance for Lab and Sampler(s)

Laboratory Requirements

Laboratories chosen must:

- Have ISO 17025 or equivalent (e.g. NELAC) certification and submit their quality assurance plan for review.
- Submit all reporting limits and detection limits for review. Table-1 and 2
- Submit all QC results upon request
- Must have written, approved procedures in place for all analytical methods
- Any testing sent to another lab must be communicated to the project team
- Ensure all method QC requirements are met QC elements

QC Elements Collected or Sent to the Field

1. Trip Blank for Volatile Organic Compounds (VOCs)

The trip blank is a preserved VOA vial (44-mL) filled with organics free water at the lab facility which accompanies the VOAs used for sample collection from the lab to the sampling site, then back to the laboratory for analysis.

2. Matrix spike/Spike Duplicate

Two extra aliquots must be collected in the field for any class of compounds run as MS/MSD pairs. The following classes should have MS/MSD pairs collected: APEOs, Azo dyes, phthalates, and PFCs. Only the effluent samples need to be collected for MS/MSD pairs, and only once (such as the “Effluent” sample).

Water Sample Collection Guidance for Sampler

The sampling should follow Standard Methods 1060 (Samples should be collected following the general guidance in Standard Methods for the Examination of Water and Wastewater, 21st edition, Method 1060), there are several important points to remind the laboratory:

- Do not rinse bottles/containers that have the preservative already added.
- Use bottles/containers that are pre-cleaned and certified by the manufacturer for collection of each sample type.
- Use glass bottles/containers whenever possible as a dipper to collect water samples.
- New, clean, food-grade plastic polyethylene buckets may be used for mix/homogenize. A new bucket should be used for each sample location. (Glass is better if possible as there is a chance organic chemical in the water will absorb to the walls of the bucket.)
- Do not use Teflon® (PTFE) - Teflon must not be used or come into contact with PFOS/PFOA samples.
- The volatile organic samples require zero headspace (no bubbles). Minimize headspace (airspace in bottle) for all samples,
- **Sample bottles/containers and sampling devices used to collect APEO samples should not be exposed to soaps/detergents.**

- All samples must be stored at 4°C from the time of collection to the time of preparation and analysis.

Sample Receipt by the Lab

1. Maintain appropriate documentation
2. Store all samples at required temperatures until analysis
3. Report any issues to the project team

Sample Preparation by the Lab

1. Document all preparatory steps
2. Communicate any issues with the project team

Data Reporting by the Lab

1. All samples must be reported in hard copy and electronic data format (spreadsheet)
2. Spreadsheet should include:
 - a. Site Name (Factory name)
 - b. Location
 - c. Country
 - d. Lab Name
 - e. Designated sample ID
 - i. **Influent** (for water coming to the facility for processing) Example: **Influent 1001**
 - ii. **Process Water** (wastewater before treatment) Example: **Process Water 1002**
 - iii. **Effluent Direct Discharge** (water being discharge after wastewater treatment to environment) Example: **Effluent direct discharge 1003**
 - iv. **Effluent POTW** (water being discharge without treatment to POTW) Example: **Effluent POTW 1004**
3. Matrix (water, Wastewater)
4. Lab Sample ID (Influent, Process Water, Effluent)
5. Analysis Method (Table-1and 2)
6. Sample Date
7. Sample Time
8. Received Date at the Lab
9. Sample Volume
10. CAS Number
11. Analyte
12. Result
13. Reporting Unit
14. Detection Limit
15. QC reports must be submitted for blanks, matrix spikes, LCS / LFB / blank spikes in the e-data and hard copy.

Sample Location:

Influent (1001) – sample should be taken from water coming in to the facility. If there are several sources the composite sample should be utilized. Mix the water from all sources and dilute them thoroughly and grab samples for the analysis. Please note, this sampling step should be performed **after** process water sampling. **Please Note: Table -1 and 2 are required for analysis except, BOD, COD, and TSS**

Process Water (1002) – This sample should be taken from equalization tank. If there is no equalization Tank available, sample should be taken from sedimentation tank. This sampling step should be the **first** sample taken at the factory. **Complete Table-1 and 2 are required for analysis.**

Effluent Direct Discharge (1003) – This sample should be taken after the wastewater treatment units but before discharge to the environment. This sampling step should be done **after** influent sample. **Complete Table 1 and 2 are required for analysis.**

Effluent water Discharge to POTW (1004) - If the facility discharges the wastewater to the Publicly or Privately Treatment Works (POTW), only influent and process water sampling is required. **Complete Table 1 and 2 are required for analysis.**

Table -1

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size
General Chemistry				
BOD (5-day)	n/a	2 mg/L	SM 5210 or ISO/DIN/ASTM equivalent	500mL plastic or glass
COD	n/a	2 mg/L	USEPA 410.4 ASTM D1252 or SM 5220D ISO/DIN/Standard Methods equivalent	
TSS	n/a	5 mg/L	SM 2540D	
pH	n/a	NA		100mL glass or plastic
color	n/a	150 ADMI	USEPA 110.2 or SM 2120B or ISO 7887-2011	250mL glass or plastic

Table-2

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
Phthalates (Ortho-phthalates)							
Di-2-ethylhexyl phthalate (DEHP)	117-81-7	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)	1L Brown glass bottle with Teflon lined lid			
butyl benzyl phthalate (BBP)	85-68-7	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
dibutyl phthalate (DBP)	84-74-2	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
diethyl phthalate (DEP)	84-66-2	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
dimethyl phthalate (DMP)	131-11-3	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
di-n-octyl phthalate (DNOP)	117-84-0	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
di-isononyl phthalate (DINP)	28553-12-0 & 68515-48-0	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
di-iso-decyl phthalate (DIDP)	26761-40-0 & 68515-49-1	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)	1L/ Brown glass bottle with Teflon lined lid			
di-isobutyl phthalate (DIBP)	84-69-5	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
di-n-hexyl phthalate (DnHP)	84-75-3	1 µg/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
Di-n-Propyl Phthalate (DPRP)	131-16-8	1 ug/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
Di-cyclohexyl Phthalate (DCHP)	84-61-7	1 ug/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
			equivalent)				
Dinonyl Phthalate (DNP)	84-76-4	1 ug/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
Di-iso-octyl Phthalate (DIOP)	27554-26-3	1 ug/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
Dimethoxyethyl Phthalate (DMEP)	117-82-8	1 ug/L	GC/MS (EPA 8270 or ISO/DIN equivalent)				
Brominated Flame retardants							
PBDE congeners	various	0.05 ug/L	EPA 527 & EPA 8321B	2L/Brown glass bottle with Teflon lined lid			
Tris(2,3-dibromopropyl) phosphate (TRIS)	126-72-7	0.5 ug/L	EPA 527 & EPA 8321B				
Polybromodiphenyl ethers (PBDEs)	various	0.05 ug/L	EPA 527 & EPA 8321B	2L/ Brown glass bottle with Teflon lined lid			
Tetrabromobisphenol A (TBBPA)	79-94-7	0.5 ug/L	EPA 527 & EPA 8321B				
Bis(2,3-dibromopropyl) phosphate	5412-25-9	25 ug/L	EPA 527 & EPA 8321B				
Hexabromocyclododecane (HBCDD)	3194-55-6	0.5 ug/L	EPA 527 & EPA 8321B				
2,2-Bis(bromomethyl)-1,3-propanediol (BBMP)	3296-90-0	25 ug/L	EPA 527 & EPA 8321B				
Chlorinated Flame Retardants							
Tris(2-chloroethyl) phosphate (TCEP)	115-96-8	0.05 ug/L	EPA 527 & EPA 8321B	1L/ Brown glass bottle with Teflon lined lid			
Tris(1,3-dichloro-isopropyl) phosphate	13674-87-8	0.5 ug/L	EPA 527 & EPA 8321B				

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
(TDCP)							
Azo dyes (Amines from Azo dyes that may release carcinogenic amines)							
2,4,5-Trimethylaniline	137-17-7	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3	1L/Brown glass bottle with Teflon lined lid			
2,4-Diaminoanisole	615-05-4	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
2,4-Diaminotoluene	95-80-7	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3	1L/ Brown glass bottle with Teflon lined lid			
2,4-Xylidine	95-68-1	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
2,6-Xylidine	87-62-7	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
2-Naphtylamine	91-59-8	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
3,3'-Dichlorobenzidine	91-94-1	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
3,3'-Dimethoxybenzidine	119-90-4	0.1 µg/L	DIN 38407-15 and EN 14362-1 & 3				
3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
3,3'-Dimethylbenzidine	119-93-7	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
4,4'-Diaminodiphenylmethane	101-77-9	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
4,4'-Methylene-bis(2-chloroaniline)	101-14-4	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
4,4'-Oxydianiline	101-80-4	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
4,4'-Thiodianiline	139-65-1	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
4-Aminobiphenyl	92-67-1	0.1 µg/L	DIN 38407-16 and EN				

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
			14362-1 & 3				
4-Chloroaniline	106-47-8	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
4-Chloro-o-toluidine	95-69-2	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
5-Nitro-o-toluidine	99-55-8	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3	1L/ Brown glass bottle with Teflon lined lid			
Aminoazobenzene	60-09-3	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
Aniline	62-53-3	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
Benzidine	92-87-5	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
o-Aminoazotoluene	97-56-3	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
o-Anisidine	90-04-0	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
o-Toluidine	95-53-4	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
p-Cresidine	120-71-8	0.1 µg/L	DIN 38407-16 and EN 14362-1 & 3				
Organotin Compounds							
Dibutyltin (DBT)	1002-53-5	0.01 µg/L	EN ISO 17353-2005	1L/Brown glass bottle with Teflon lined lid			
Tributyltin (TBT)	56573-85-4	0.01 µg/L	EN ISO 17353-2005				
Trioctyltin (TOT)	Various	0.01 µg/L	EN ISO 17353-2005				
Tripropyltin (TPT)	Various	0.01 µg/L	EN ISO 17353-2005				
Diocetyl tin (DOT)	Various	0.01 µg/L	EN ISO 17353-2005				
Triphenyltin (TPhT)	668-34-8	0.01 µg/L	EN ISO 17353-2005				
Tricyclohexyltin (TCyHT)	Various	0.01 µg/L	EN ISO 17353-2005				
Chlorobenzenes							

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
Chlorobenzene	108-90-7	0.02 µg/L	EPA 8260B & EPA 8270D	1L/ Brown glass bottle with Teflon lined lid			
4-Chlorotoluene	106-43-4	0.02 µg/L	EPA 8260B & EPA 8270D				
1,2-Dichlorobenzene	95-50-1	0.02 µg/L	EPA 8260B & EPA 8270D				
1,3-Dichlorobenzene	541-73-1	0.02 µg/L	EPA 8260B & EPA 8270D				
1,4-Dichlorobenzene	106-46-7	0.02 µg/L	EPA 8260B & EPA 8270D				
1,2,4-Trichlorobenzene	120-82-1	0.02 µg/L	EPA 8260B & EPA 8270D				
1,2,3-Trichlorobenzene	87-61-6	0.02 µg/L	EPA 8260B & EPA 8270D				
1,3,5-Trichlorobenzene	108-70-3	0.02 µg/L	EPA 8260B & EPA 8270D				
1,2,3,4-Tetrachlorobenzene	634-66-2	0.02 µg/L	EPA 8260B & EPA 8270D				
1,2,3,5-Tetrachlorobenzene	634-90-2	0.02 µg/L	EPA 8260B & EPA 8270D				
1,2,4,5-Tetrachlorobenzene	95-94-3	0.02 µg/L	EPA 8260B & EPA 8270D				
Pentachlorobenzene	608-93-5	0.02 µg/L	EPA 8260B & EPA 8270D				
Hexachlorobenzene	118-74-1	0.02 µg/L	EPA 8260B & EPA 8270D				
Chlorinated solvents							
Carbon tetrachloride	56-23-5	0.02 µg/L	EPA 8260B	500 ml /40mL VOA Vials			
Chloroform	67-66-3	0.02 µg/L	EPA 8260B				
1,2-Dichloroethane	107-06-2	0.02 µg/L	EPA 8260B				
1,1-Dichloroethene	75-35-4	0.02 µg/L	EPA 8260B				
cis-1,2-Dichloroethene	156-59-2	0.02 µg/L	EPA 8260B				
trans-1,2-Dichloroethene	156-60-5	0.02 µg/L	EPA 8260B				
Methylene chloride	75-09-2	0.02 µg/L	EPA 8260B				
Tetrachloroethene	127-18-4	0.02 µg/L	EPA 8260B				
1,1,1-Trichloroethane	71-55-6	0.02 µg/L	EPA 8260B				
Trichloroethene	79-01-6	0.02 µg/L	EPA 8260B				
1,1,2-Trichloroethane	79-00-5	0.02 µg/L	EPA 8260B	500 ml /40mL VOA Vial			
1,1,1,2-	630-20-6	0.02 µg/L	EPA 8260B				

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
Tetrachloroethane							
Chlorophenols							
Pentachlorophenol	87-86-5	0.5 µg/L	EPA 8270D	1L/ Brown glass bottle with Teflon lined lid			
2,3,4,6-Tetrachlorophenol	58-90-2	0.5 µg/L	EPA 8270D				
2,3,4,5-Tetrachlorophenol	4901-51-3	0.5 µg/L	EPA 8270D				
2,3,5,6-Tetrachlorophenol	935-95-5	0.5 µg/L	EPA 8270D				
Short Chain Chlorinated Paraffins (SCCP) with C10 –C13							
Short Chain Chlorinated Paraffins (SCCP) with C10 –C13	85535-84-8	0.4 µg/L	ISO/PRF 12010 or EPA 8082	1L/ Brown glass bottle with Teflon lined lid			
Heavy Metals							
Chromium, hexavalent, Cr(VI)	7440-47-3	1.0 µg/L	EPA 7196A	500 ml /250ml glass or Plastic bottle with Teflon lined lid			
Lead, Pb	7439-92-1	1 µg/L	EPA 3015A & 6010/6020A	250mL plastic bottle			
Cadmium, Cd	7440-43-9	0.1 µg/L	EPA 3015A & 6010/6020A				
Mercury, Hg	7439-97-6	0.05 µg/L	EPA 3015A & 6010/6020A				
Antimony, Sb	7440-36-0	1 µg/L	EPA 3015A & 6010/6020A				
Arsenic, As	7440-38-2	10 µg/L	EPA 3015A & 6010/6020A				
Chromium, Cr (total)	7440-47-3	1 µg/L	EPA 3015A & 6010/6020A				
Cobalt, Co	7440-48-4	1 µg/L	EPA 3015A & 6010/6020A	250mL plastic bottle			
Copper, Cu	7440-50-8	1 µg/L	EPA 3015A & 6010/6020A				
Nickel, Ni	7440-02-0	1 µg/L	EPA 3015A & 6010/6020A				
Mn	7439-96-5	1 ug/l	EPA 3015A & 6010/6020A				
Zinc	7440-66-6	5 µg/L	EPA 3015A &				

Compound Name	CAS Number	Reporting Limit	Test Method	Sample Size	Analysis Result Influent ug/L	Analysis Result Process Water ug/L	Analysis Result Effluent ug/L
			6010/6020A				
APEO							
Nonylphenol	104-40-5	5 µg/L	ASTM D7065	2L/ Brown glass bottle with Teflon lined lid			
Nonylphenol monoethoxylates, NP1EO		5 µg/L	ASTM D7065				
Nonylphenol , (NP)	Various	1 µg/L	ASTM D7065				
Octylphenol (OP)	Various	1 µg/L	ASTM D7065				
Nonylphenoethoxylates, (NPEOs)	Various	1 µg/L	ASTM D7065				
Octylphenoethoxylates , (OPEOs)	Various	1 µg/L	ASTM D7065				
PFCs							
perfluorooctanoic acid (PFOA)	335-95-5	0.01 µg/L	LC-MS	1L/Polypropylene bottle with polypropylene lid			
perfluorooctane sulfonate (PFOS)	Various	0.01 µg/L	LC-MS				