ESPRIT

ESPRIT WASTEWATER DISCHARGE REPORT

RESULTS BASED ON ROUND 1 (ENDED OCOTBER 31, 2017) AND 2 (ENDED APRIL 30, 2018) OF TESTING

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1 INTRODUCTION

The core of our environmental sustainability program is our commitments to detox – zero discharge of hazardous chemicals by 2020. To fulfil our commitment, we have several measurements and programs in place. An important step to fulfill our commitment is the testing waste water. In FY 17/18 we rolled out the wastewater testing according to the wastewater guidelines by the Zero Discharge of Hazardous Chemicals Group (ZDHC).

The aim of this report is to communicate the results of our wastewater testing publicly and is the base to monitor the future performance of our own efforts and our mills efforts to improve the wastewater quality and shift to a more sustainable production.

This report is part of the Right-to-Know principle in our detox commitment.

2 METHODOLOGY

The wastewater testing program is according to the ZDHC Wastewater Guidelines. Therefore, we test our wet process mills bi-annually, by October 31st and April 30th. To conduct the wastewater testing, it is necessary first, to map the supply chain, especially to map out our Tier 2 wet processes supply chain. We have clear definitions for Tier1, Tier2 and Tier3 suppliers, which are as following:

Tier	Definition
1	Place of fabrication: garment sewing, linking, garment finishing, packaging and storage
2	Spinning, weaving, dyeing, printing, fabric finishing, knitting
3	Raw materials providers: Chemical suppliers, sewing yarn suppliers, machinery suppliers, filament and staple fiber suppliers

2.1 Supply Chain Transparency

In our first wastewater testing round we have identified 199 wastewater mills in our supply chain. However, as we learned in the second round of wastewater testing, where we did a new mapping, this supplier list was not complete. In the second round we identified 289 wet process suppliers. How is this discrepancy possible?

As our Tier2 supply chain is more flexible than our Tier 1 supplier base, this number is never fully stable. Depending on seasons and trends our products can require different finishing and wet processes. Therefore, the supply chain for wet processes is not as stable as our Tier1 supplier base. In general, it is our aim to build long-term relationships with our direct suppliers and working with them in a collaborative and transparent way in order to achieve more stability and long term relation with our Tier 2 suppliers that belong to our master suppliers (Tier1).

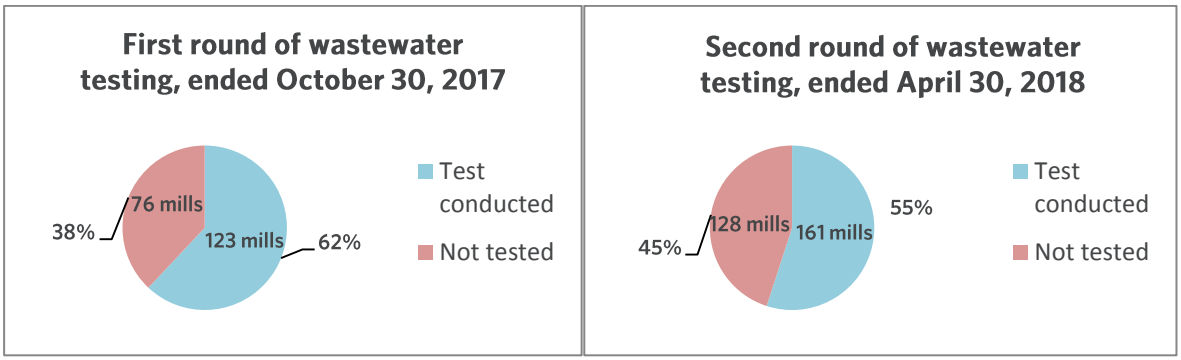
As this is due to different products and seasons more challenging with Tier2 suppliers, we focus on monitoring our supply chain constantly.

2.2 Testing Target

It is our target that all our wet process suppliers participate in the wastewater testing. Therefore, the departments Sourcing, Buying and Fabric Management supported the Sustainability department in encouraging our wet process mills to conduct the testing. We approached all our identified wet process mills to conduct the testing. In the first testing round, ending in October 31/2017, 199 wet process mills were

approached. During the second testing, ending in April 30, 2018, 289 wet process suppliers had been identified and approached to conduct the testing.

Below you find an overview of all suppliers 9 (tier 2 wet facilities) who took part in the testing and published the results on at least one of the accepted platforms, IPE or ZDHC Chemical Gateway.



2.3 Process of testing

*Third party: All laboratories approved by the ZDHC for wastewater testing

** Institute of Public & Environmental Affairs (IPE) China

During the testing, the following parameters are covered:

- Conventional parameters
- Anions
- Metals
- Alkylphenols and Akylphenol Ethoxylates (APEO)
- Chlobenzenes and Chlorotoluenes
- Chlorophenols
- Dyes- Azo (Forming Restrictes Amines)
- Carcinogenic Dyes
- Flame Retardants
- Glycols
- Halogenated Solvents
- Organotin Compounds
- Perfluorinated and Polyfluorinated Chemicals
- Phtalates
- Poly Aromatic Hydrocarbons
- Volatile Organic Compounds

Depending whether a factory has a direct discharge or an indirect discharge, there are different sampling points. A factory with a direct discharge usually has an on-site effluent treatment plant (ETP) and is therefore able to discharge the water directly into rivers, lakes groundwater or others. A factory with indirect discharge has no own ETP but using one off-site of the factory. This could be for example a municipal ETP.

Depending to which category the factory belongs, there are different areas to take the water samples:

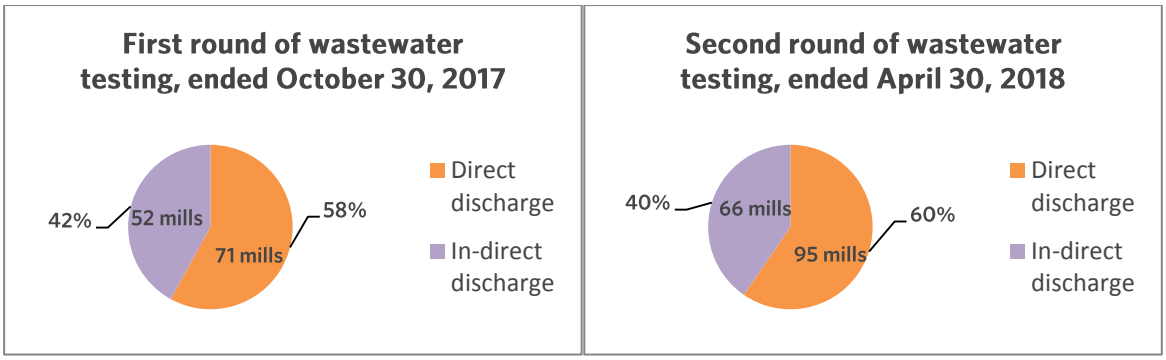
Direct Discharge (on-site ETP)

- Incoming water [1]
- Raw Wastewater/ Sludge (optional)
- Discharged Wastewater

Indirect Discharge (off-site ETP)

- Incoming water
- Raw Wastewater/ Pre-Treated Wastewater

Our factories have different set-ups and we found both, direct and indirect discharge.



Sampling is only conducted when the mill is in full operation. To ensure the preservation and integrity of each sample, the testing and transport of the sample was done according stringent international standards.

2.4 Public release of results

We require from our wet process factories to publish the results. Therefore we use two platforms, the platform of the Institute of Public & Environmental Affairs (IPE) in China and the ZDHC Chemical Gateway. The IPE platform is nowadays the only platform that allows public disclosure of the wastewater results. This means, everybody can check the results. On the ZDHC Chemical Gateway, this function is not yet available. Only stakeholders with access to the platform can see the wastewater data at this point.

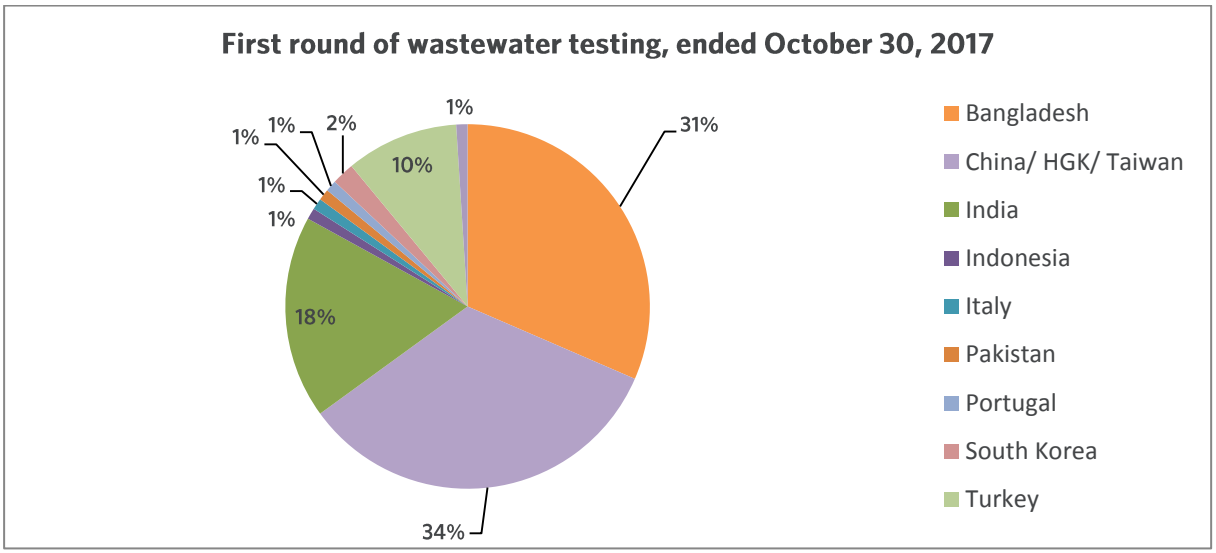
[1] Incoming wastewater= municipal water supply, fresh water from rivers, lakes etc. , groundwater

3 RESULTS

In this chapter we present the results of testing give more insights on the countries and regions where the wet process suppliers are based.

3.1 Coverage of countries

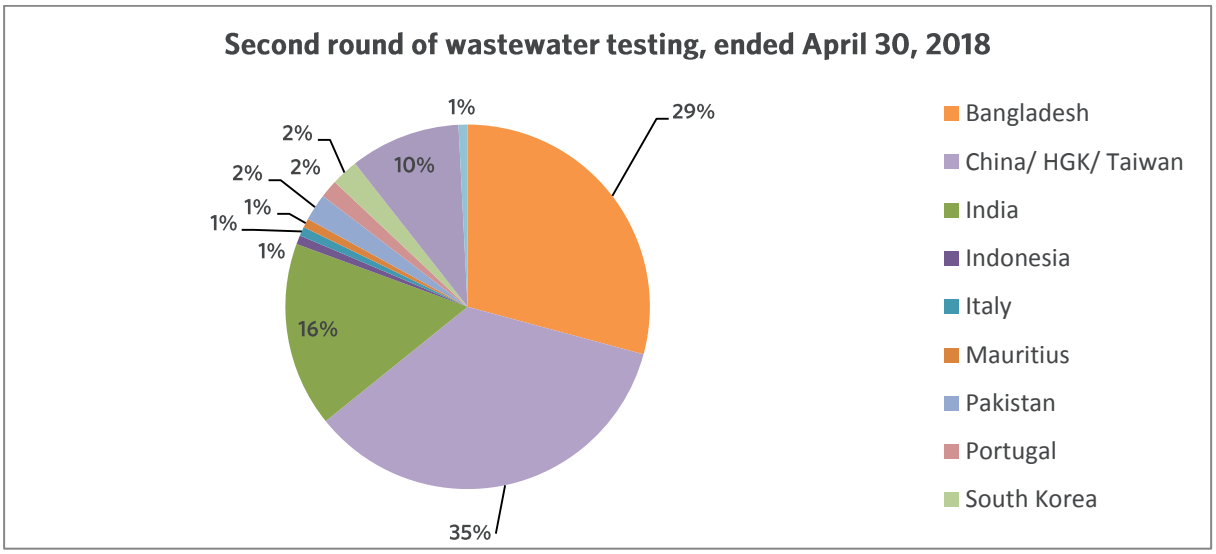
Below the country coverage for the first round of testing is presented.



Detailed overview for first round of testing

Country	Total amount of mills	Mill conducted test		
		Total	Direct discharge	Indirect discharge
Bangladesh	38	36	35	1
China & Taiwan	66	43	10	33
India	32	20	17	3
Indonesia	1	1	0	1
Italy	2	1	0	1
Madagascar/ Mauritius	2	1	1	0
Pakistan	5	3	3	0
Portugal	17	2	0	2
South Korea	5	3	0	3
Turkey	30	12	4	8
Vietnam	1	1	1	0
	199	123	71	52

Below the country coverage for the second round of testing is presented.



Detailed overview for second round of testing

Country	Total amount of mills	Mill conducted test		
		Total	Direct discharge	Indirect discharge
Bangladesh	37	34	31	3
China & Taiwan	119	56	17	39
France	2	0	0	0
India	34	32	28	4
Indonesia	1	1	0	1
Italy	5	1	0	1
Madagascar/ Mauritius	3	3	2	1
Morocco	2	0	0	0
Pakistan	8	7	7	0
Portugal*	18	0	0	0
South Korea	13	2	0	2
Spain	2	0	0	0
Tunisia	1	0	0	0
Turkey	42	23	9	14
Vietnam	2	2	1	1
	289	161	95	66

* In Portugal we have printing mills that do not have wet processes with direct or indirect discharge, as they use screen printing technique. The wastewater is gathered and handled differently. Therefore, the mills in Portugal are out of scope.

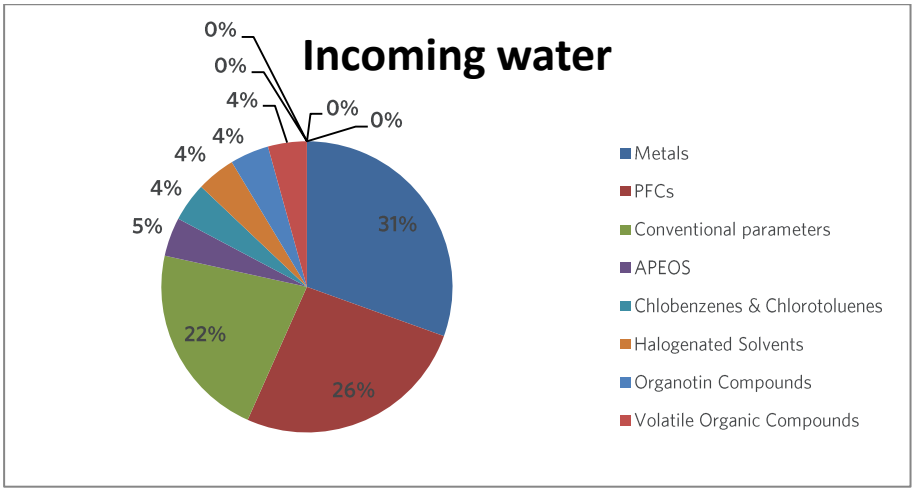
3.2 Results & Findings

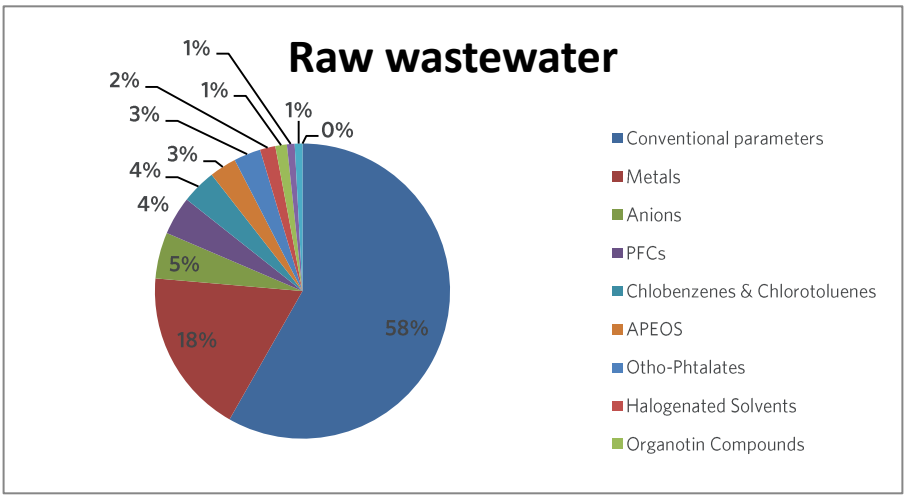
In this chapter, we present the findings, especially the alerts, for each sample group. Alerts are defined as results above the limits defined in the ZDHC Wastewater Guideline. In general, we found alerts in the following parameter groups

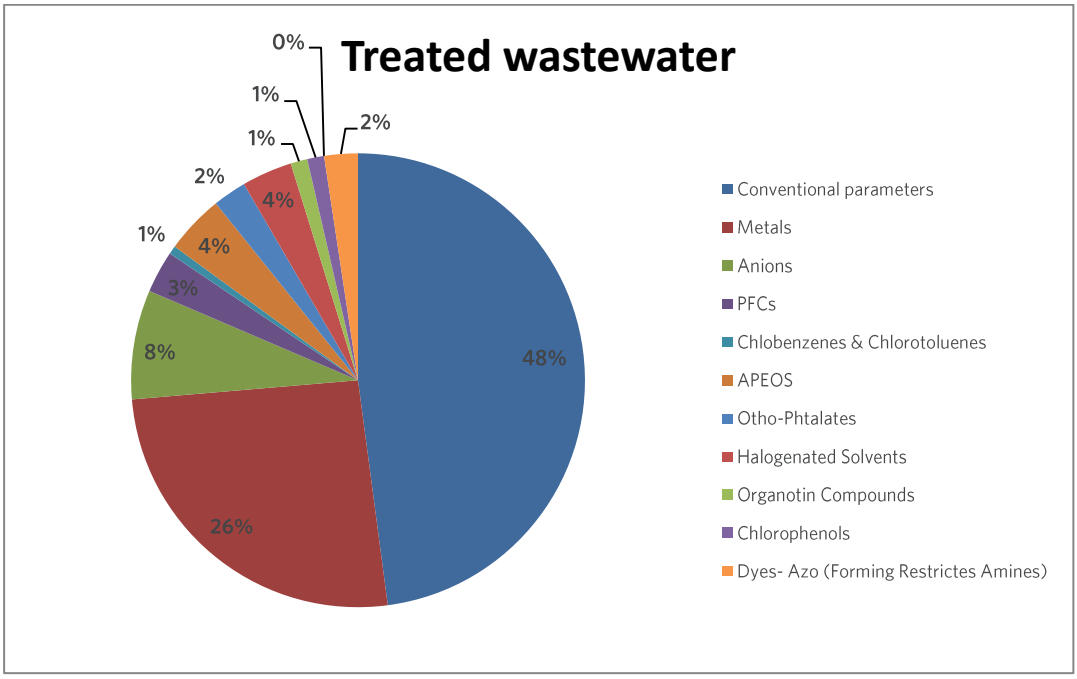
- Conventional parameters
- Anions
- Metals
- APEOS
- Chlobenzenes & Chlorotoluenes
- Chlorophenols
- Dyes- Azo (Forming Restrictes Amines)
- Halogenated Solvents
- Organotin Compounds
- PFCs
- Otho-Phtalates
- Volatile Organic Compounds

3.2.1 Results for first round of testing, ended October 30, 2017

Below the results for incoming water, raw wastewater and treated wastewater are presented.

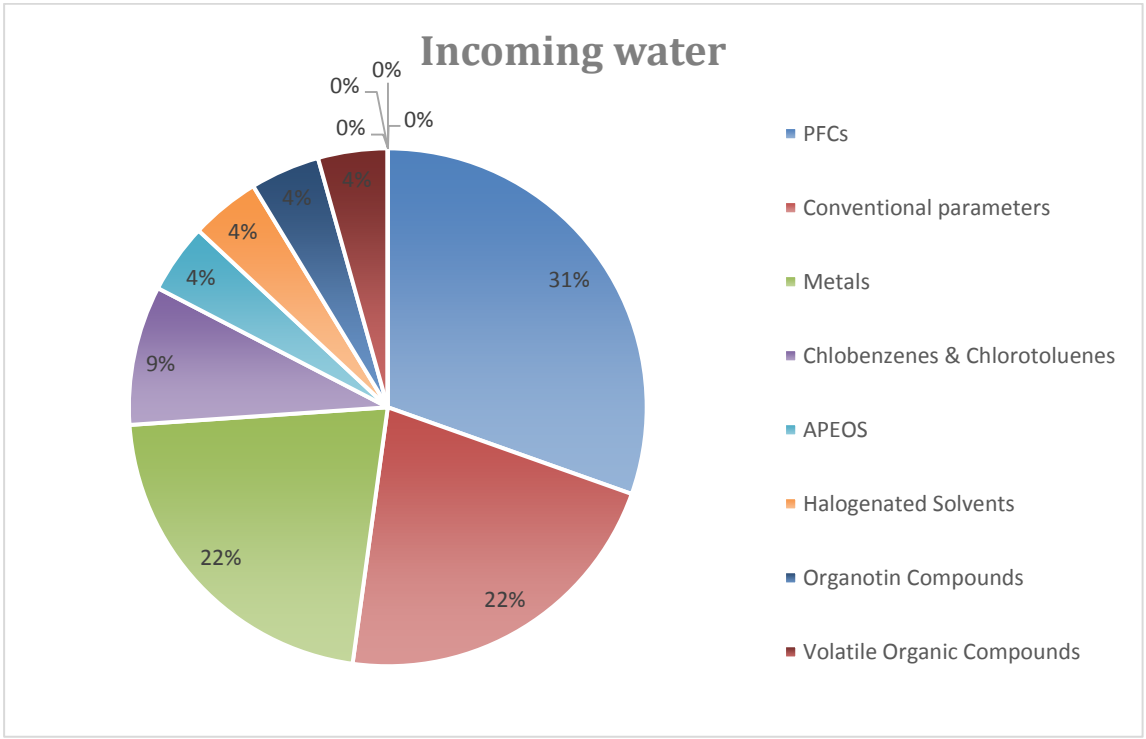


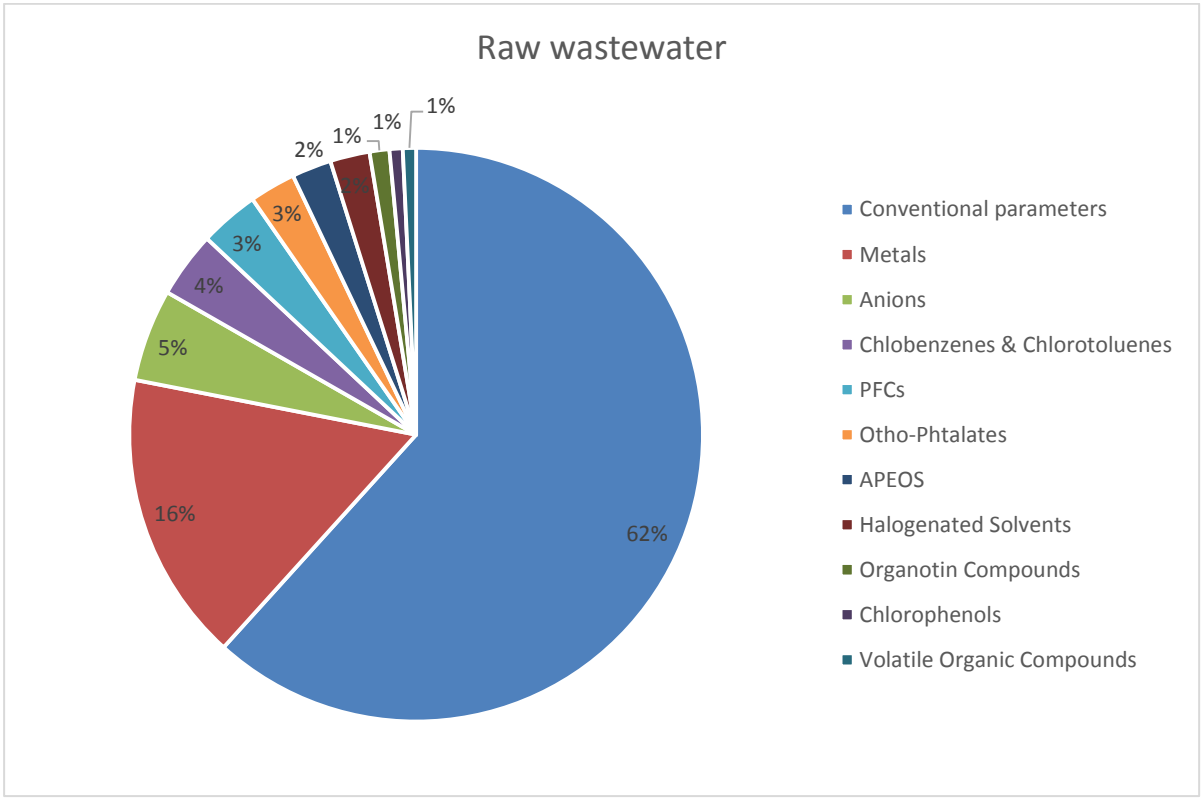


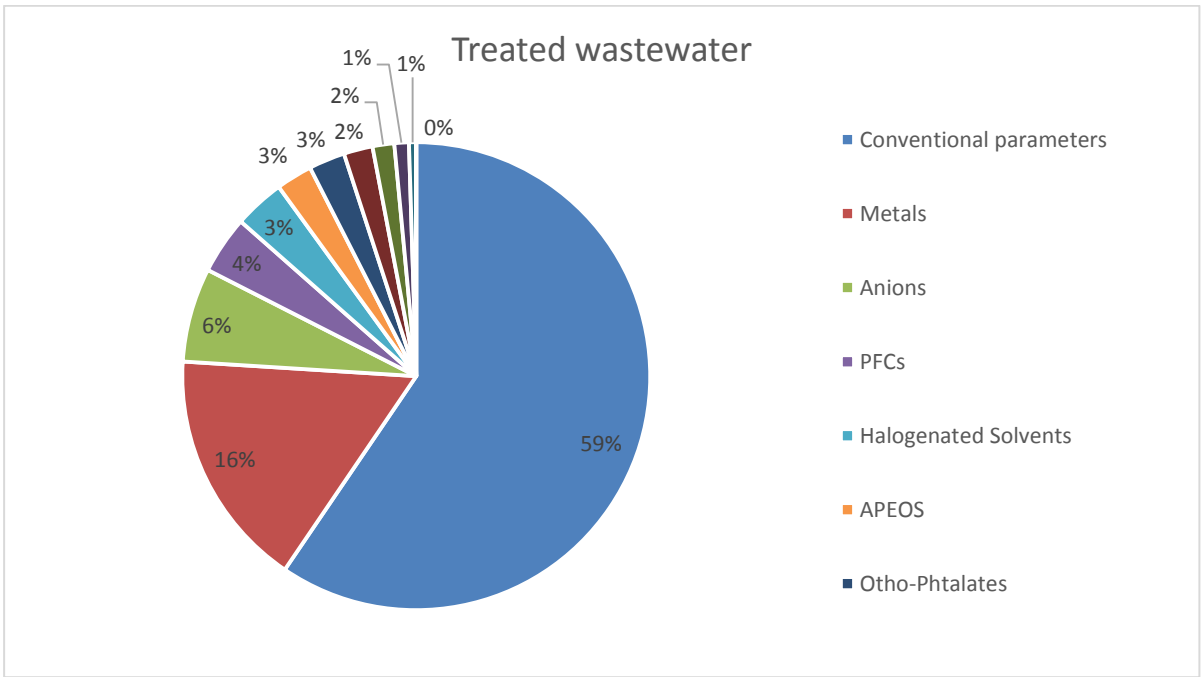


3.2.2 Results for second round of testing, ended April 30, 2018

Below the results for incoming water, raw wastewater and treated wastewater are presented.




Raw wastewater
62%
16%
5%
4%
3%
3%
2%
1%
1%
1%
Conventional parameters
Metals
Anions
Chlobenzenes & Chlorotoluenes
PFCs
Otho-Phtalates
APEOS
Halogenated Solvents
Organotin Compounds
Chlorophenols
Volatile Organic Compounds


Treated wastewater
59%
16%
6%
4%
3%
3%
3%
2%
2%
1%
1%
0%
Conventional parameters
Metals
Anions
PFCs
Halogenated Solvents
APEOS
Otho-Phtalates

3.3 Regional Resuls

Within this chapter, the findings for each country or regions are presented.

Bangladesh

Findings in first round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	5	17
Anions	0	2	8
Metals	22	46	35
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	0	0
Chlobenzenes and Chlorotoluenes	0	2	2
Chlorophenols	0	4	3
Dyes- Azo (Forming Restrictes Amines)	0	3	2
Halogenated Solvents	0	3	0
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	0	0
Volatile Organic Compounds	0	2	0

Findings in second round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	5	28	24
Anions	0	0	2
Metals	0	0	4
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	0	0
Chlobenzenes and Chlorotoluenes	0	2	1
Chlorophenols	0	2	2
Dyes- Azo (Forming Restrictes Amines)	0	1	0
Halogenated Solvents	1	1	3
Organotin Compounds	0	1	1
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	0	0
Volatile Organic Compounds	0	0	0

China & Taiwan

Findings in first round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	90	17
Anions	0	7	1
Metals	12	32	31
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	8	3
Chlobenzenes and Chlorotoluenes	0	0	0
Chlorophenols	0	2	1
Dyes- Azo (Forming Restrictes Amines)	1	3	5
Halogenated Solvents	2	2	1
Organotin Compounds	3	4	2
Perfluorinated and Polyfluorinated Chemicals	3	10	5
Otho-Phtalates	1	4	4
Volatile Organic Compounds	0	0	0

Findings in second round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	56	39
Anions	0	3	2
Metals	1	26	21
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	4	4
Chlobenzenes and Chlorotoluenes	1	4	0
Chlorophenols	0	0	0
Dyes- Azo (Forming Restrictes Amines)	0	5	3
Halogenated Solvents	0	1	1
Organotin Compounds	1	2	3
Perfluorinated and Polyfluorinated Chemicals	4	6	8
Otho-Phtalates	0	0	2
Volatile Organic Compounds	1	2	0

India

Findings in first round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	3	3	14
Anions	0	1	3
Metals	13	18	11
Alkylphenols and Akylphenol Ethoxylates (APEO)	4	3	2
Chlobenzenes and Chlorotoluenes	0	0	0
Chlorophenols	0	0	0
Dyes- Azo (Forming Restrictes Amines)	0	0	0
Halogenated Solvents	0	0	0
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	2	0
Volatile Organic Compounds	0	0	0

Findings in second round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	19	13
Anions	0	4	3
Metals	0	4	4
Alkylphenols and Akylphenol Ethoxylates (APEO)	1	0	1
Chlobenzenes and Chlorotoluenes	1	1	0
Chlorophenols	0	0	0
Dyes- Azo (Forming Restrictes Amines)	0	0	0
Halogenated Solvents	0	0	0
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	2	0
Volatile Organic Compounds	0	0	0

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Turkey

Findings in first round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	24	28
Anions	0	4	1
Metals	0	0	4
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	1	0
Chlobenzenes and Chlorotoluenes	0	0	0
Chlorophenols	0	0	0
Dyes- Azo (Forming Restrictes Amines)	0	0	0
Halogenated Solvents	0	0	0
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	0	0
Volatile Organic Compounds	0	0	0

Findings in second round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	46	37
Anions	0	5	3
Metals	4	11	5
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	1	0
Chlobenzenes and Chlorotoluenes	0	1	0
Chlorophenols	0	0	0
Dyes- Azo (Forming Restrictes Amines)	0	1	0
Halogenated Solvents	0	1	0
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	1	0
Volatile Organic Compounds	0	0	0

Other countries[2]

Findings in first round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	12	4
Anions	0	0	0
Metals	0	0	6
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	0	0
Chlobenzenes and Chlorotoluenes	0	0	0
Chlorophenols	0	0	1
Dyes- Azo (Forming Restrictes Amines)	0	0	0
Halogenated Solvents	0	0	0
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	0	0	0
Otho-Phtalates	0	1	1
Volatile Organic Compounds	0	1	0

Findings in second round of testing

Parameter class	Incoming water	Raw wastewater	Treated wastewater
Conventional parameters	0	17	9
Anions	0	2	3
Metals	0	4	1
Alkylphenols and Akylphenol Ethoxylates (APEO)	0	1	0
Chlobenzenes and Chlorotoluenes	0	2	0
Chlorophenols	0	0	0
Dyes- Azo (Forming Restrictes Amines)	0	1	1
Halogenated Solvents	0	4	3
Organotin Compounds	0	0	0
Perfluorinated and Polyfluorinated Chemicals	3	3	0
Otho-Phtalates	0	4	3
Volatile Organic Compounds	0	0	0

[2] Indonesia, Italy, South Korea, Pakistan, Portugal, Vietnam

4 CORRECTIVE ACTIONS

We have selected one facility for this report; to explain the process we follow in order to improve waste water quality by working together with our suppliers.

Mill name: *SHAHI EXPORTS - UNIT F I.], Plot No.1, Sector - 28, Faridabad, Haryana India.*

Unit F1 is the main head office and also washing facility of Shahi Exports in Faridabad, Haryana, India.
They have 16 washing machines with capacity of 3150 kgs. They do softener wash, enzyme wash & denim washing. They have well established laboratory doing physical and chemical testing and also their on ETP plant.

Summary Of Alerts in Phase I & Phase II according to ZDHC waste water guidelines

	Incoming water (IW)	Raw waste water (RW)	Treated waste water (TW)
Phase I Dt.13/9/17	Alerts	Alerts	Alerts
	2	5	4

	Incoming water (IW)	Raw waste water (RW)	Treated waste water (TW)
Phase II Dt. 26/3/18	Alerts	Alerts	Alerts
	2	4	3

Test Parameters	Phase I			Route Cause	Action Taken	Phase II			Route Cause	Action To be Taken
Conventional	IW	RW	TW			IW	RW	TW		
Ammonium-N			0.56mg/l					12.7mg/l	Factory has attributed high level of Ammonium-N to the fault in ETP plant. The aeration timing is less and the urea usage is more.	They plan to upgrade their ETP - putting one more aeration tank, reverse osmosis for incoming water purification and re-use urea usage by introducing bio culture treatment. Project will take 1 year time to get upgraded ETP in place.
AOX			<0.1mg/l					<0.1mg/l		
BOD			8.0mg/l					27mg/l		
COD			65mg/l					86mg/l		
Coliform			5/100ml					Absent		
Colour			0.8:0.3:0.2					1.1:0.8:0.7		
Oil and Grease			0.5mg/l					0.5mg/l		
pH			7.5					7		
Phenol			<0.001mg/l					0.012mg/l		
Total Nitogen			8.12mg/l					17.48mg/l		
Total Phosphorus			0.013mg/l					0.43mg/l		
TSS			<5mg/l					<5mg/l		
Anions - Sulfite			<0.2mg/l					1.24mg/l		
Anions - Sulfide			0.83mg/l	High level of sulfide is route caused to Sodium Meta bi Sulphite, the neutralizer.				1.98mg/l	High level of sulfide is route caused to Sodium Meta bi Sulphite the neutralizer.	Unit plans to stop using it and instead taking trials with Sodium Thiosulphate. They will take trials and come with findings.

Conventional - Metals	Phase I			Route Cause	Action Taken	Phase II			Route Cause	Action To be Taken
	IW	RW	TW			IW	RW	TW		
Antimony(Sb)	ND	ND	2ug/l	The metal content in TW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.		26ug/l	14ug/l	19ug/l	The metal content in TW is coming lower than ZDHC waste water guidelines progressive levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Even the incoming water through local suppliers is having metal content and such low ppb values cannot be totally eliminated.	Unit is asking their water suppliers to clean tanks on weekly basis to minimize metal contamination in water.
Chrommium (Cr)	ND	6ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments,etc. while washing. Such low ppb values cannot be totally eliminated.		ND	ND	ND		

Conventional - Metals	Phase I			Route Cause	Action Taken	Phase II			Route Cause	Action To be Taken
Cobalt (Co)	ND	2ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.		ND	4ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.	
Copper (Cu)	ND	26ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments etc. while washing. Such low ppb values cannot be totally eliminated.		ND	ND	ND		

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Conventional - Metals	Phase I			Route Cause	Action Taken	Phase II			Route Cause	Action To be Taken
Nickle (Ni)	7ug/l	9ug/l	2ug/l	The metal content in TW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.		3ug/l	2ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.	Unit is asking their water suppliers to clean tanks on weekly basis to minimize metal contamination in water.
Silver (Ag)	ND	ND	ND			ND	ND	ND		
Zinc (Zn)	ND	6ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.		ND	14ug/l	ND	The metal content in RW is coming lower than ZDHC aspirational levels. Root cause could not be found as it can be present from many sources like trims in garments, etc. while washing. Such low ppb values cannot be totally eliminated.	
Arsenic (Ar)	ND	ND	ND			ND	ND	ND		
Cadmium (Cd)	ND	ND	ND			ND	ND	ND		
Lead (Pb)	ND	ND	ND			ND	ND	ND		
Mercury (Hg)	ND	ND	ND			ND	ND	ND		
Chrommium VI	ND	ND	ND			ND	ND	ND		
Cyanide (CN-)	ND	ND	ND			ND	ND	ND		

APs and APEOs	Phase I			Route Cause	Action Taken		Phase II			Route Cause	Action To be Taken
	IW	RW	TW				IW	RW	TW		
OP Mixed isomers	ND	ND	ND				ND	ND	ND		
Nonylphenol NP	ND	ND	ND				ND	ND	ND		
OPEO	ND	ND	ND				ND	ND	ND		
NPEO	14	ND	20	As per unit, the problem of NPEO was in incoming water only on which they had no control. Principally as part of MRSL compliance Shahi don't use APEO based Chemicals in their Factory.	Chemical inventory has been completely checked also with confirmation letter from chemical suppliers and could not find source of NPEO's. The factory concluded that source is incoming water.		ND	ND	ND		

Other Priority Chemical Group	Phase I			Route Cause	Action Taken		Phase II			Route Cause	Action To be Taken
	IW	RW	TW				IW	RW	TW		
Chlorobenzene & Chlorotoluenes	ND	ND	ND				ND	ND	ND		
Chlorophenols	ND	ND	ND				ND	ND	ND		
Azo Dyes	ND	ND	ND				ND	ND	ND		
Carcinogenic Dyes	ND	ND	ND				ND	ND	ND		
Disperse Dyes	ND	ND	ND				ND	ND	ND		
Flame Retardents	ND	ND	ND				ND	ND	ND		
Glycols	ND	ND	ND				ND	ND	ND		
Halogenated Solvent	ND	ND	ND				ND	ND	ND		
Organotin Comp	ND	ND	ND				ND	ND	ND		

Other Priority Chemical Group	Phase I			Route Cause	Action Taken		Phase II			Route Cause	Action To be Taken
Perfluorinated & Polyfluorinated Chemicals	ND	ND	ND				ND	ND	ND		
Phthalates	ND	ND	ND				ND	ND	ND		
Poly Aromatic Hydrocarbons	ND	ND	ND				ND	ND	ND		
Volatile Organic Compounds	ND	ND	ND				ND	ND	ND		

Conclusions and next steps:

Mill has identified the root cause of the alerts detected during testing. They are now going to work on remediation.
The complete chemical inventory has being reviewed to ensure specially the compliance in terms of APEO's. All the critical chemicals (potential source of non-compliance) have been reviewed where all technical data sheet, material safety data sheet and guarantee letter from chemical suppliers with clear statement on compliance with MRSL have been provided. Testing results show that mill is not generating APEO's and the first alert was related with the presence of these chemicals already in the incoming water.
They target to get remediation done before next phase testing in Oct18 so that same failures do not repeat.
The aspirational values given by ZDHC for conventional metals are too low and really hard to achieve due to various reason including its presence in incoming water also.
They plan to put Reverse Osmosis (RO) for incoming water purification. Also as a next step we will follow up chemical inventory compliance with MRSL through ZDHC gateway platform.